THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES.

MARCH, 1890.

AN INVESTIGATION INTO THE ETIOLOGY OF PHTHISIS.

By Heneage Gibbes, M.D.,
PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF MICHIGAN,
AND
E. L. Shurly, M.D.,
PROFESSOR OF LARYNGOLOGY AND CLINICAL MEDICINE IN THE DETROIT COLLEGE OF MEDICINE.

This investigation is undertaken with the object of working out the morbid changes in the lungs which result in the formation of cavities, and endeavoring to prove the causal relation of the bacillus tuberculosis thereto. Also by inoculation experiments on animals to find out whether all forms of phthisis reproduce themselves in the same manner; the ape, as being the animal most nearly allied to man, being taken for this purpose. At the same time the clinical histories, physical signs, and symptoms of the cases from which material is taken are fully and carefully investigated to find out if different lesions in the lungs can be diagnosed thereby. A careful series of experiments are being carried on with inoculated animals to prove the value of various therapeutical measures, special apparatus and heated isolated rooms being arranged for that purpose.

I.

On the Histology of Tubercle.

BY HENEAGE GIBBES, M.D.

On reading the vast amount of work that has already been done on this subject it would seem that any further investigation was uncalled for; but the discovery of Koch's tubercle bacillus has produced a new

definition of tuberculosis, and now everything in the shape of lung or other disease that contains the tubercle bacillus is considered to be tuberculosis: while the old-fashioned term pulmonary phthisis is either left out altogether from the text-books, or else is mentioned as synonymous with tuberculosis.

It would, therefore, seem imperative that the processes set up by this bacillus and its relation to them should be thoroughly understood before this theory should be accepted. Such is, however, very far from being the case, as a perusal of some of the latest works on pathology will show.

It has always been a matter of wonder to me that this theory of Koch's should at once have met with almost universal acceptance with scarcely any corroborative evidence. As a proof that this is the case, in a paper by Dr. Harold C. Ernst, in THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES for November, 1889, the following statement is made:

"The work showing the etiological relationship of the bacillus of tuberculosis to the disease was, to all intents and purposes, complete upon the publication of Koch's monograph upon the subject. Nothing more in the way of proof was actually needed, and, indeed, very little has been furnished."

Further on he states:

"What is accepted the scientific world over, that in the organism described by Koch we have the specific cause of this pathological change, and that without its activity we do not have tuberculosis in any form or under any conditions."

Dr. J. F. Payne, in his *Manual of General Pathology*, published in 1888, says in describing tuberculosis:

"Tuberculosis is the name given to the disease caused by the introduction of tubercle bacilli into the body."

Further on he gives the heading:

"Tuberculosis of the Lungs, or Pulmonary Phthisis."

Koch's discovery came at a very opportune time; this bacillus was the solution of a difficulty, and numbers of men at once accepted the new theory. The practical work in demonstrating the tubercle bacillus in sputum was also easy of accomplishment and enabled many men to get their names in print who otherwise would have languished in well-deserved obscurity.

Having thus the cause of the disease established, it would seem that nothing difficult would be found in describing the effects produced. From the earliest observations made on tuberculosis and phthisis down to those of the present day more than one form of lesion has been observed in the lungs, and from these differences arose the variety of opinion as to the unity or duality of phthisis, which has been now settled by the discovery of the bacillus tuberculosis.

The views of the older writers are so well known it is needless to recapitulate them here. Taking, therefore, the statements of writers of the present time, that is, since the discovery of Koch's bacillus, we will see how the unity of phthisis is established by them, for if B. tuberculosis is the virus of tuberculosis the unity of phthisis is a foregone conclusion. On turning, however, to various authorities on tuberculosis, we find that they all are obliged to describe a number of definite lesions in the lungs. Ziegler has quite a bewildering array of pathological processes in connection with diseases of the lungs.

Austin Flint, in Pepper's *System of Medicine*, says:

"There are two distinct varieties of morbid products in cases of phthisis, namely, the miliary granulations and the infiltrated deposit formerly distinguished as crude tubercle."

Loomis's *Practical Medicine*, 1889, says:

"Recent investigations have established a pathological unity in the morbid processes of pulmonary phthisis.

While all forms of tubercular disease must be considered identical in their origin, and the primary lesion in each to be tubercle, the wide variations in the morbid changes which are found in the lungs of phthisical subjects, *as well as the marked differences in their clinical history*,[1] compel us to recognize two distinct varieties of pulmonary tuberculosis."

Bristowe, in the sixth edition of his *Practice of Medicine*, makes a statement to the same effect.

Fagge, in the second edition of his *Principles and Practice of Medicine*, edited by Dr. Pye-Smith, states that all cases of phthisis are essentially of the same character; and further, that pneumonic phthisis is equivalent to phthisis which has advanced quickly, fibroid phthisis to one of which the course has been slow. He further states that it is necessary, both from a clinical and pathological point of view, to distinguish acute miliary tuberculosis from phthisis.

Dr. Payne says:

"Tuberculosis of the lungs or pulmonary phthisis is by far the most common disease. Here we recognize two forms distinguished by the manner in which the poison is introduced and distributed through the organs."

These references, which might be multiplied indefinitely, will serve to show that although the tubercle bacillus of Koch is recognized by all these writers as being the virus of the disease, yet they are unable to reconcile it with their clinical experience.

Nearly all writers vary in the classification they adopt of the varieties of phthisis; some include acute miliary tuberculosis, others leave it out; the same with fibroid phthisis. Dr. Payne's view that the lesion varies with its method of introduction is worth further notice, and we will see on what observations he founds his views. He divides tuberculosis into

[1] The italics are mine.—H. G.

the catarrhal and infective forms of phthisis. The catarrhal form, he states, occurs when the disease has entered the lungs through the respiratory channels; the infective, when it has followed the channels of the circulation, sanguineous or lymphatic. The infective form, he further states, agrees in its distribution with acute miliary tuberculosis. He also states, "the forms may be combined, the latter being developed out of the former or even *vice versa*." In describing these forms he puts them under two headings.

"1. *Pulmonary Phthisis.*—In most of the cases it is clear that the poison enters the organ by the respiratory channels.

"The process appears to be that the bacilli settle down in some portion of lung where there is little movement and the expulsive action of the ciliated epithelium of the bronchi is less energetic. Such a spot is clearly the apex, or it may be in spots where previously existing inflammation favors the lodgement and growth of the bacillus. Within the alveoli and possibly in the smallest bronchioles they set up changes resulting in the formation of a miliary tubercle. It is now clearly established that the tubercle is formed at first inside the alveoli, though at one time it was thought to belong to the interstitial structure of the lung.

"Thus we have the commonest lesion of phthisis which makes up a great part of the morbid changes in most phthisical lungs, viz, caseous or scrofulous broncho-pneumonia, or catarrhal pneumonia.

"This process may occur alone or may be accompanied by miliary tubercles.

"Caseous pneumonia arises from inhalation of the virus into the alveoli, while miliary tuberculosis, etc., are due to infection by bloodvessels and lymph channels (Watson Cheyne). Caseous pneumonia, *with or without visible tubercles*, may spread over a large part of the lungs and soon undergoes necrosis; this causes softening or breaking down, the lung tissue is thus destroyed.

"2. *Infective Tuberculosis of the Lung.*—If the tubercular virus be distributed by the pulmonary arterial system it becomes arrested at various places in the capillaries and a number of small tubercular foci are formed which may be compared to minute embolisms. This constitutes the process known as acute miliary tuberculosis of the lung.

"It may occur quite independently of any broncho-pneumonia or inflammatory process such as above described, which is proved by the fact that cases occur where the whole lung tissue is crepitant and normal but for the miliary tubercles, and where during life the physical signs of lung disease are absent."

I have quoted fully from Dr. Payne, as his is the most lucid explanation of the processes he has described, and now I will analyze his description and see how it will agree with the histology of tubercle as I am about to define it.

In the first place, his description of pulmonary phthisis is exactly what was always considered to be correct, a capillary bronchitis extending into and involving portions of the lung substance. He thinks the bacilli settle down where there is little movement and where the action of the cilia is less energetic; this, he says, is clearly the apex, but he gives no data on which his opinion is founded. Now, what proof have we that there is less movement in the apex of the lungs than in other parts of the organ? The statement has frequently been made that the air is not so readily changed

in the upper part of the lungs. I can see no foundation for this statement. Let anyone carefully examine a man in perfect health with erect carriage and he will see that all parts of the lung expand equally both in ordinary and forced inspiration, and I think most modern practical, not theoretical, physiologists will bear me out in this. Again, in women who wear corsets the costal type of respiration shows that the upper portion of the lungs is doing even more than its share of work; and are these women any more free from phthisis than men?

When the disease is established the patient stoops, and then the action of the upper part of the lung is impaired, but why? Because the disease has caused the stoop and consequent relaxation of the muscles' action on the upper part of the lung. As to the statement that the action of the cilia is less energetic, this is pure theory without a shadow of proof. He also says there may be spots of previously existing inflammation for the bacilli to lodge in. This seems an extraordinary statement. How are these inflammatory spots brought about that are ready for the bacillus to drop into and develop, and what has caused them? Why should they not be the disease itself producing a change in the tissues making a favorable nidus for these bacilli to grow in? He then states that changes take place within the alveoli resulting in the formation of a miliary tubercle. He has before described a miliary tubercle as composed of a fine reticular stroma and giant cells. He states that the tubercle is formed inside the alveolus, and informs us that "this is already established;" by whom he does not say.

We have, then, an inflammatory condition beginning in the bronchi and extending into the lungs, where it results in the formation of miliary tubercles. He then goes on further to state that the tubercle proper becomes mingled with the products of ordinary inflammation, so as to produce the appearance of broncho-pneumonia, and then says the process may occur alone or may be accompanied by miliary tubercles. This statement is so involved that it is difficult to know what is meant.

There are assumptions made here of which we are given no proof, and yet on them rests the foundation for the bacillary origin of the disease. Dr. Payne places after some of the statements he has made the name of Mr. Watson Cheyne, and we may infer that he has taken Mr. Cheyne's work to corroborate the theories he advances. It is therefore necessary to look up Mr. Cheyne's work to see how it does this.

In the London *Practitioner*, for April, 1883, Mr. Cheyne published a paper in which he describes the investigations he had made, and I find his work often quoted as entirely corroborating Koch's theory in regard to the bacillary origin of phthisis. Among many other positive statements he makes is this:

"In man we have the disease termed acute miliary tuberculosis, which resembles in every respect—histological structure, tendencies, and presence of

bacilli—the acute tuberculosis produced in animals by the inoculation of tuberculous material."

Numerous observers have disproved this, and I shall have occasion to allude to it again.

Mr. Watson Cheyne in the same paper describes and figures "a body which was apparently a parasite." It was pointed out to him by competent histologists at one of the societies where he showed the specimens from which this drawing was made, that what he thought a parasite was really a striped muscle fibre which occurs normally in the pulmonary vein of rabbits. Such faulty observation does not inspire reliance in his deductions.

Anyone reading the various descriptions of the lesions in tuberculosis cannot fail to see that the endeavor to make them fit into the bacillary view has caused a twisting of facts, an assumption of many things as proved which are not based on reliable work, and the adoption of theories without proof even attempted, so that we have now a situation where numerous writers accept a virus for a disease, the lesions of which they cannot even all describe alike, to say nothing of the origin of these lesions: some saying that tubercle is of connective tissue origin, others of epithelial; some saying the bacilli are always found in the giant cells, others that they have never found them there; while, as a climax, Watson Cheyne describes the formation of giant cells from epithelial cells and then figures the formation of a capillary bloodvessel from a giant cell.

It seems to me that this diversity of opinion as to the lesions in tuberculosis would be removed if the structure of a tubercle were well defined and its connection with the disease established. Most of the writers quoted describe two forms of tubercle, and say they occur in the same lung indiscriminately; and Dr. Payne even goes so far as to say the one may develop out of the other, or *vice versa;* and here lies the crucial point: if this is the case, the unity of phthisis is an established fact; but if these two forms *do not occur* in the same lung, then there are different lesions resulting in the formation of cavities, and it follows that the bacillus tuberculosis does not at one time form one lesion and at another time a totally different one. In other words, it is highly improbable that the bacillus is the virus of *both* diseases. Numerous descriptions have been written of the histology of tubercle by E. Wagner, Friedländer, and others, while Buhl and Hering have described acute miliary tuberculosis as disseminated catarrhal pneumonia. I shall not, however, refer further to their work, but take that of Klein in his *Anatomy of the Lymphatic System*, vol. ii., as here he describes the appearances found in the lungs of seven children that died of acute miliary tuberculosis. I have made thousands of sections of these very lungs and can speak positively of the appearance presented in them. All the cases except one had been diag-

nosed as acute miliary tuberculosis; in the one case the diagnosis was uncertain whether enteric fever or tuberculosis.

Klein found that the histological appearances in two of the cases differed entirely from the other five. The two cases he describes as follows:

"The abnormal masses (tubercles) correspond to groups of alveoli and infundibula, being filled with and distended by a fibrinous material that contains granules and small cells. . . . The structure of the alveolar wall is hardly distinguishable and its capillary bloodvessels not permeable, as is shown by the fact that in well-injected (artificially) specimens the injection does not extend into these capillaries . . . all through both lungs the nodules show the same histological characters. There was no trace of giant cells anywhere."

His description of the remaining five cases is too long to quote, but it amounts to this, that these differ entirely from the two first described, and the tubercles consisted of a reticular stroma containing one or more giant cells, while in the centre of the larger tubercles was a necrosed area. I have now before me a very large number of mounted sections from these seven cases, and also from a large number of cases I have obtained from time to time. They all can be divided absolutely into two classes: reticular and caseous tubercles.

I cannot agree with the conclusion he draws that the reticular form is only a later stage of the caseous, for two reasons: 1, in the large number of sections I have examined some would show a transition stage from caseous to reticular—this is certainly not the case; 2, in support of this view he supposes that the fibrinous material he describes in the centre of a caseous tubercle may be replaced by groups of cells or by a giant cell. I have in many sections the very first commencement of the formation of a reticular tubercle, and the process is this:

1. A number of round cells are found massed together in a small area of the lung tissue. 2. These cells assume a spindle shape, and at the same time the first formation of a giant-cell appears. At the same time new capillary bloodvessels are formed, and then the reticular tissue from the spindle-cells, or these processes may go on together. The tubercle now presents the appearance of a fibroid tissue with one or more giant cells in it, having patent bloodvessels containing Berlin blue injection material. I have always injected these lungs when practicable. As the tubercle grows, the fibroid tissue increases and assumes a more or less circular form and grows from within, so that giant cells are now in the periphery; after a time the centre necroses, I suppose from the contraction of the fibroid tissue cutting off the blood supply—at any rate, the injection will only now penetrate the reticular tissue. Several of these tubercles develop side by side until a number are fused together, and still some can be found in the mass in all stages of development. These two forms of tubercle are indistinguishable to the naked eye, and are distributed through all parts of the lungs, but never together in the same lung.

From the above description it will be seen that the two forms of tubercle described agree entirely with those of Payne, only they do not occur in the same lung, nor are they capable of transformation the one into the other, or *vice versa*.

There now remains the relation of the tubercle bacillus to these two forms. On December 4, 1882, I read a paper at the Medical Society of London, in which I described the two forms of tubercle, and pointed out that in the caseous form every tubercle contained large numbers of bacilli; while in many cases of the reticular form they were absent altogether, and when present only existed in very small numbers and then isolated amongst the reticular tissue. I have since then carefully examined every case of acute miliary tuberculosis I have been able to obtain—and they are not a few—and I have found the same state of things in all of them. When the caseous form exists there will be the bacilli in the smallest tubercles, but I have never been able to find any in a commencing tubercle of the reticular form in its earliest stage. I have also never seen a bacillus in a giant-cell in the human lung. Hamilton, in the *Hand-book of Pathology*, vol. i., states that the giant-cells sometimes contain the tubercle bacillus, although rarely in man. Further on, he states there are many tubercles in which not a vestige of the bacillus can be seen. Dr. Payne says:

"In specimens from the human subject the giant cells very rarely contain bacilli. The writer has never seen them in that situation, and observers of much larger experience have confirmed this negative result. . . . . The bacilli are, on the other hand, very numerous in the caseous masses of human phthisis."

In speaking of tubercle Dr. Payne says:

"The structure known as acute miliary tubercle is now regarded as the essential type of the disease."

I have now given a description of the histology of tubercle based on the examination of thousands of sections taken from a large number of cases of this disease. From the information gained I feel justified in considering that the disease, acute miliary tuberculosis, is of two kinds, as shown by the difference in the structure of the tubercles and in the relation of the tubercle bacillus to them; the one being an acute inflammatory process localized throughout the lungs, the other a formation akin to granulation tissue, also localized, and from the mode of its growth prone to produce necrosis in the centre of the tubercles. What the relation of the tubercle bacillus is to these two forms remains to be proved.

Acute Phthisis.

Many pathologists complain that the physician uses a different classification to theirs, and that he distinguishes varieties of phthisis at the

bedside which the pathologist does not recognize. And no wonder, when the pathologist is striving to make these varieties all fit into one theory as to their causation. A large number of clinicians of great experience will not admit that all forms of lung cavities come from one and the same cause; they know the physical signs, symptoms, or course of the disease will not allow this. In acute phthisis, either the phthisis florida of the German writers or that of a more chronic form, it can be shown that there are no tubercular formations such as have been described under miliary tuberculosis—I mean in those cases where there has been catarrhal pneumonia causing consolidation, which consolidation has not cleared up but has gone on to caseation and subsequent breaking-down, thus forming a cavity.

Tuberculosis.

On the other hand, in many cases where there are large cavities in the lungs, these are clearly seen to be caused by the breaking-down of tubercular masses, as in portions of the lung remaining the reticular tissue and giant-cells are plainly seen. From this I conclude that there are two distinct processes which form consolidations in the lungs and then break down, forming cavities; but these processes do not occur indiscriminately in the same lung. To prove this, Dr. G. C. Huber, of this University, made an investigation in my laboratory of the lungs taken from cases of phthisis. He embodied the results in a paper read before the State Medical Society at Kalamazoo in May last, and the paper was published in the *Medical News* of July 8, 1889.

He found 21 cases in all; 5 of these were fibroid phthisis, and were, therefore, discarded; of the remaining 16, sections were cut from various parts and the results were always the same—they were either cases of tuberculosis or of caseous phthisis, and the two forms were never mixed. I have examined an enormous number of lungs from phthisical cases during the last seven years, and my experience has always been the same.

The relation of the tubercle bacillus to these forms, also, is different; in the caseous form there are always large numbers of them, while in tuberculosis, where there is caseation and breaking down, they also occur, but not in anything like the number they do in the caseous form. I have also examined several cases of tuberculosis with large cavities without finding a single bacillus in several hundred sections. This is only what Koch himself admits, he having also found cases where there were no bacilli. The above are facts which can easily be verified by an examination of my specimens, and surely in the face of them no conscientious man can say that the tubercle bacillus is absolutely proved to be the virus of phthisis.

Fibroid Phthisis.

By this I mean a condition where the product of some acute inflammation, such as croupous pneumonia, has not cleared up, but has remained behind in patches; these have undergone various changes, but generally retain their characteristic appearance so far as to enable one to understand the primary change.

In my experience croupous pneumonia is the commonest form which produces a fibroid change. The unabsorbed residue sets up an irritation which is followed by increase of the normal fibrous tissue until large bands of this are seen in parts of the lungs; the process is a very chronic one, and is generally associated with much pigmentation and anthracosis. In these cases, at any rate in some of them, the consolidated material after a time caseates and breaks down, and in this can be found the tubercle bacilli. I have noticed one peculiarity in connection with this disease; that is, the formation of large giant-cells at the edges of the consolidation together with fibroid tissue resembling tubercles. This was of quite recent date and probably corresponded to the breaking down of the consolidation. In miners' and other phthisis caused by long-continued irritation the process is essentially the same—it results in the formation of dense fibrous tissue; the breaking down in these cases seems to be independent of the original disease. Of what is called true interstitial pneumonia I have no experience, never having seen a case; in fact, I rather doubt its existence.

I have already stated Mr. Cheyne's views as to the identity of the tubercles produced by inoculation in animals with those occurring spontaneously in the human subject. That these views are incorrect is absolutely certain; there is no formation of a reticular nature such as we find in a true miliary tubercle. In animals the inoculation produces nodular inflammatory masses with, in some cases, multinucleated cells; these masses often caseate, but do not generally break down and form cavities as in the human subject. I have found that there is a difference in the resulting nodule according to whether the material used for inoculation is taken from a case of caseous phthisis or from one of tuberculosis, and this difference is carried on to other animals inoculated from the first. I have not, however, been able yet to get sufficient data on this subject, from the great difficulty there is in this country in obtaining post-mortem examinations. Another point worthy of notice is the absence of the tubercle bacillus from the commencing nodules produced by inoculation. In all my numerous experiments on animals I have never been able to find the bacillus in the very beginning of the nodular formation; it does not occur until the nodule becomes caseous. This differs entirely from the process in leprosy, where in the liver the change

can be seen where only two or three cells are affected, and there invariably are several bacilli. A great deal of work has yet to be done before this interesting question is finally settled.

THE PATHOLOGICAL ANATOMY AND THE MODE OF DEVELOPMENT OF MITRAL STENOSIS IN CHILDREN.

By A. Ernest Sansom, M.D. Lond., F.R.C.P.,
PHYSICIAN TO THE LONDON HOSPITAL, CONSULTING PHYSICIAN AND VICE-PRESIDENT OF THE NORTHEASTERN HOSPITAL FOR CHILDREN.

It can hardly be urged that Science has spoken her last word concerning mitral stenosis. Before the memoir of M. Fauvel, in 1843, the condition was probably never differentiated from mitral regurgitation; and it is only since 1862, when Dr. W. T. Gairdner, of Glasgow, described the physical signs with admirable precision, that the study of a sufficient number of cases could present the two affections in contrast. We may now affirm that, although obstruction at the left auriculo-ventricular aperture and regurgitation through that aperture exist in a majority of cases, there are well-defined differences between mitral stenosis, with or without regurgitation, and mitral regurgitation without stenosis—differences in the diagnostic signs, differences in the consecutive changes in the heart, differences in the mode of origin, differences in the clinical history, and differences in the indications for treatment. Good observers, however, are not in accord as to the interpretation of the signs met with in the clinical study of the affection, and it cannot be superfluous to attempt to obtain a light to elucidate these and other pathological problems from all available sources. I propose to consider a series of cases occurring in children only of twelve years of age and under.

Systematic books on diseases of children treat mitral stenosis very briefly or incidentally. In the analysis of cases hitherto published very few cases occurring in children are quoted. Yet Dr. Cheadle has lately said:

"Mitral stenosis is in its origin especially a lesion of childhood and early life. I find 33 cases with presystolic murmur and 24 with reduplicated second sound, out of 273 cases of organic heart disease in children of which I have accurate record. The youngest were two boys of four."[1]

I proposes to analyze forty cases in which the physical signs indicated mitral stenosis, and nineteen records of post-mortem examination. My method will be simply deductive and not controversial.

[1] Harveian Lectures on the Various Manifestations of the Rheumatic State in Childhood and Early Life. London, 1889, p. 109.

I. PATHOLOGICAL ANATOMY.—The cases may be conveniently divided into two classes: (1) Those manifesting slight obstruction at the auricular outlet; such may also exemplify the *early* stage of the affection. (2) Those in which the obstruction is permanent and more or less extreme.

In the first of these classes were ten cases. The slightest form of obstruction between auricle and ventricle is afforded by a ring of vegetations around the auriculo-ventricular aperture on its auricular aspect. These vegetations may be friable and easily detached, or firmly fixed upon the endocardial surface with no fibrin adhering to them. The fibrous structures subjacent to the vegetations are found to be firmer than normal and form a thickened ring. The thickening may extend to the curtains of the mitral valve and to the chordæ tendineæ. In five of these cases the right ventricle was considerably dilated, and in one the left auricle greatly hypertrophied. In two children of ten years of age the weight of the heart was much above the normal, viz., eight ounces in one and twelve ounces in the other.

In one instance there was an association with congenital anomaly—the aorta arising from the right ventricle and there being a communication between the ventricles. In this case the vegetations of endocarditis were found upon the endocardium of the left auricle, and encircling the mitral orifice. One case was that of a baby two months old; there was a ring of granulations of endocarditis, and the mitral valve was thickened. Of the other cases, two were seven and the remainder ten years of age.

It may be contended that the appearances in these cases do not justify the conclusion that they would eventually become instances of permanent stenosis. This contention is probably quite justifiable. In some the vegetations may disappear and, the thickened structures becoming smooth, no disturbance of the dynamic conditions within the cavities may result. In others the ventricle may become dilated, and the consequence may be regurgitation and not stenosis. The cases are cited, however, to show that, during its existence, the ring of vegetation constitutes an obstruction to the blood-flow from auricle to ventricle, and to point to the probability that starting from the endocardium, in the neighborhood of the vegetations, the process of thickening involves the curtains of the valve and the fibrous structures to the production of the permanent form of stenosis, which we shall now consider.

The fully developed form of stenosis is illustrated by nine cases. In all except one the mitral aperture was of "funnel" form—the exception was the "buttonhole" variety.

In the less-marked instances of the funnel mitral, the curtains of the valve were united at their peripheral portions; they were thick; the thickening involved the chordæ tendineæ, which were shortened. The

endocardium lining the left ventricle was thickened, In two instances this thickening reached up to, and involved, the aortic semilunar valves, but these were not rendered incompetent.

In a case recorded by the late Dr. Hayden, the orifice in the funnel form of mitral stenosis (in a boy of ten years of age) was reduced to the size of the barrel of a goose-quill. In another case (a boy of seven), the orifice was of buttonhole form and admitted the point of the index-finger with some difficulty; "it was bounded by the valve-segments, which were smooth and thick on the edges, being elsewhere fused into an elliptical curtain. To the anterior and right portion of this curtain a mass of solid fibrin was attached."[1] In one of my cases, a girl of eleven, the mitral curtains were extremely thick and presented the characters of cartilage.

The cases show that the funnel form of constriction of the mitral orifice in children is much more common than the buttonhole, the proportion being eight to one. This contrasts strongly with the condition as observed in adults. In 62 post-mortem examinations recorded by the late Drs. Fagge and Hayden, only 3 presented the funnel form. Dr. Fagge found 46 examples of the buttonhole to 1 of the funnel. My own records of post-mortem examination in mitral stenosis at all ages are shown in the following table:

ANALYSIS OF PATHOLOGICAL APPEARANCES IN FORTY CASES OF MITRAL STENOSIS AT ALL AGES.

I. *Condition of Mitral Aperture.*

Buttonhole (slit, chink, or crescent)	19 cases.
Circular (funnel-shaped)	15 "
Irregular	6 "

II. *Condition of Left Auricle.*

Dilatation and hypertrophy	10 cases.
Hypertrophy	3 "
Dilatation (extreme dilatation in 7)	18 "

III. *Condition of Left Ventricle.*

Normal (or very slight hypertrophy)	12 cases.
Cavity noted small	3 "
Wall noted thin	1 "
Hypertrophy	9 "
Dilation (in 1 case slight dilatation only)	5 "
Dilatation and hypertrophy	3 "

There were probable signs of some dilatation and hypertrophy of the *right* chambers in all the cases; in many the dilatation was extreme.

To return to the appearances in the cases of children: the left auricle

[1] Diseases of Heart and Aorta, Dublin, 1875, pp. 942 and 944.

was dilated in 5, and hypertrophied in 6 instances. In one of my cases, a boy of nine, the muscular wall was a quarter of an inch in thickness in its thickest portion, and one-eighth of an inch in its thinnest. The muscular hypertrophy is greatest in the auricular appendix. The auricle, therefore, may attain the proportions of the right ventricle of an adult. This is an important point to consider in reference to the question of the adequacy of the auricle to accomplish a powerful injection of the ventricle. I may here say that in 4 of my 40 cases clinically examined an impulse was found in the third left interspace, demonstrably presystolic in time, and in all probability due to the systole of the left auricle. Cardiographic evidence also shows that in some cases the elevation due to the auricular systole not only attains a magnitude and extent many times the normal, but also contributes to the general rise of the apex which is completed by the ventricular systole.

The left ventricle was in 2 cases especially noted as small, and in 2 the aorta was less in calibre than the normal.

The right ventricle was very notably dilated in 9 cases, and in 3 the whole heart was greatly enlarged. In some instances the enlarged right cavities and left auricle stood out in strong contrast with the moderate or small dimensions of the left ventricle. In cases with general enlargement of the heart there was association with pericarditis.

The pericardium was adherent in 10 cases, in 9 firmly and extensively; in 1 the adhesion was limited. Endocarditis was evident in 12 cases.

In only one case was there any association with congenital anomaly, the aorta arising from the right ventricle and the interventricular septum being perforate. In this case there was no malformation at the mitral orifice, but the granulations of endocarditis on the mitral curtains and within the left auricle were observed. The late Dr. Peacock pointed out that malformations of the heart might superinduce endocarditis. In a case described by Ayrolles,[1] that died ten days after birth, there was marked stenosis; but in this also there were observed numerous endocarditic vegetations. No doubt the disease producing the stenosis arose and progressed during intra-uterine life. The right chambers were found to be greatly enlarged.

In another of my cases, two months old, the mitral valve was thickened with numerous granulations about its edges. Dr. Goodhart[2] has recorded a stenosed mitral aperture admitting one finger, in a girl of five and a half years. The ages in all the other cases of marked stenosis I have noted were seven, nine, ten (two cases), and eleven years.

[1] Revue Mensuelle des Maladies de l'Enfance, 1885.

[2] Diseases of Children, p. 531

The post-mortem evidence I have adduced is, necessarily, not very extensive, but yet, I think, is sufficient to warrant certain conclusions:

1. Mitral stenosis is not a congenital formation. Good observers have described cases as those of "congenital mitral stenosis." The late Dr. Peacock considered that some of the so-called cases of "buttonhole" mitral were probably of congenital origin.[1] I am not aware of a single recorded case, however, in children wherein a stenosed mitral orifice was observed apart from endocarditis. The most recent article on congenital cardiac affections in children with which I am acquainted is that by Dr. William Osler in Keating's *Cyclopædia of Diseases of Children*.[2] Stenosis of the *tricuspid* orifice with thickening and adhesion of the valve-segments is there figured. Dr. Osler adds:

"Atresia of the orifice may result from a developmental anomaly in which there may be no appearance of valvular mechanism, a condition invariably associated with other profound disturbances. Obliteration of the orifice by fœtal endocarditis is more common, and can be recognized by the marked changes in the endocardium. Sometimes, however, it is a difficult matter to determine which factor has prevailed."

As regards the *mitral* orifice, though it is said that anomalies are occasionally met with—*e. g.*, imperfect differentiation of the segments, increase in the number of curtains to three—no instance of a membranous obstruction of the orifice is adduced.

If mitral stenosis were a congenital malformation, it would probably be observed in cases of congenital cyanosis; such is not the fact. Nor, as I have said, is it met with in cases of congenital anomaly, except as a result of fœtal endocarditis.

2. Mitral stenosis is intimately associated with endocarditis. I have just adduced instances of the obstruction associated with endocarditis in intra-uterine life. These, however, are very rare. Constriction of the mitral orifice is scarcely ever met with until after the age of five years. In every one of the nineteen cases I have cited there was found to be an association with endocarditis or pericarditis, or with both these affections combined. It is not difficult to realize that the membranous funnel, so smooth, even, and regular in its conformation that it has suggested the probability of a congenital error of development, is the result of a slow process of welding and thickening of the mitral curtains; the fluid pressure both on the auricular and ventricular sides occasioned by the rhythmic movements of the heart explaining the apparent symmetry which in some instances it presents.

II. Clinical Evidence concerning Etiology.—The pathological evidence which we have just considered indicates a very marked association between mitral stenosis and the changes in the endocardium and pericardium which are observed in rheumatism. Clinical observation

[1] Quain's Dictionary of Medicine, p. 614.

[2] Philadelphia, 1889, p. 757.

abundantly confirms this association. Grouping the cases which had manifested acute and subacute rheumatism with those in which scarlatina had been an antecedent, those manifesting some of the very slight signs of the rheumatic state in the child and those presenting a family predisposition to rheumatism, I find that 26 of my 40 cases (65 per cent.) might be deemed rheumatic. Dr. Cheadle found, putting out of the question family history, a personal history of rheumatism in 44 out of 57 cases (79 per cent.). Admitting that there is evidence of antecedent or concurrent rheumatism in the great majority of cases, we are, nevertheless, constrained from clinical experience to conclude that a very small minority present no obvious manifestations whatever of the rheumatic state. In such case the affection is usually brought under our notice in one of two ways: either (*a*) there are signs of wasting and long-continued malnutrition; or (*b*) there is a sudden crisis referable to a lesion of the nervous system.

As as example of the first mode, I may take the case of

Elizabeth M., aged nine, whose general appearance and condition suggested tuberculosis. She wasted rapidly, and manifested night-sweats. The signs were a typical presystolic murmur with sharp, loud impulse besides those of considerable cardiac hypertrophy.

Another example is that of

F. F., a boy of twelve, who had manifested no sign of rheumatism, but had been the subject of "icterus neonatorum." His complaint had always been abdominal. He manifested a rattling presystolic murmur occupying the whole period of diastole, and abruptly terminated by a sharp and sudden first sound.

The following are examples of the second mode:

Amy F., aged ten, had never suffered from rheumatism, but was markedly anæmic; she became suddenly hemiplegic on the right side. Œdema and ascites supervened. At the autopsy, the mitral orifice was found contracted in moderate degree, and the endocardium rough. All the other valves were healthy, but the pericardium was adherent.

William G. L., at the age of three and a half, was seized with a fit, was unconscious for twenty minutes, and was thought by his relatives to be dead. Nine months afterward he became choreic, and at the age of five was in the hospital with a well-marked attack of chorea. He manifested no sign or history of rheumatism. He presented a pronounced presystolic murmur and thrill.

Elizabeth W. commenced to have epileptic convulsions at the age of five; these recurred every three or four weeks. She was under observation in the hospital at the age of ten, and epilepsy was well marked. A low-pitched, short presystolic murmur was heard internal to the apex. No rheumatism, nor family tendency thereto.

The late Dr. Hayden recorded the case of a boy, aged seven, pale and emaciated, who presented a bulging præcordium with presystolic murmur and thrill. There had been no sign of rheumatism. The boy was suddenly seized with right hemiplegia and aphasia. The autopsy disclosed buttonhole stenosis of the mitral, a mass of solid fibrin being attached to

a portion of the curtain. The anterior and middle cerebral arteries of the left side were plugged to distention with particles of solid fibrin evidently derived from the mass within the heart.

In the 40 cases I have analyzed there were 9 that manifested chorea; 2 of these were right and 2 left hemichorea. With the exception of chorea, not one severe lesion of the nervous system occurred in the subjects of mitral regurgitation uncomplicated with stenosis. It is evident that the phenomena of embolism occur with far greater frequency in the subjects of mitral stenosis.

I have elsewhere given evidence from clinical observation to show that the signs of mitral stenosis may develop insidiously without any indication of rheumatism, that the condition of mitral regurgitation, as shown by physical signs, may in the course of time become changed to one of mitral stenosis, that stenosis developing insidiously may in course of time be accompanied by regurgitation.[1]

We have abundant evidence to prove that mitral stenosis may develop in like manner with mitral insufficiency in close relation with acute and subacute rheumatism. When we come to compare these two conditions in their relation with the intensity of the rheumatic manifestations, we may gain an insight into the precise pathogenesis of the two affections. In children who manifested well-marked acute or subacute rheumatism I found 64 cases of mitral regurgitation to 6 of mitral stenosis (proportion 10.6 to 1). In those who presented no history of rheumatic antecedents but who had had a previous attack of scarlatina or measles or both these diseases, 23 of regurgitation to 4 of stenosis (5.7 to 1) in those who showed evidence only of obscure rheumatoid pains, 8 of regurgitation to 2 of stenosis (4 to 1), and in those with no history of rheumatism nor obvious marked antecedent, 32 of regurgitation to 15 of stenosis (2.1 to 1). It seems, therefore, that the probability of stenosis occurring rather than regurgitation is the greater as the degree of rheumatic manifestation is slighter, and that in a considerable number of instances there is no *clinical* evidence of any rheumatic association at all.

Reviewing our data from the fields both of pathological anatomy and of clinical observation, I think we may conclude that the morbid process which results in constriction of the mitral orifice commences with endocarditis which, in the great majority of cases, is of the rheumatic form. It is, however, a *limited* endocarditis and the consecutive changes are comparatively slow. In the endocarditis which usually accompanies well-defined acute rheumatism the area involved in the inflammatory changes is considerable. The endocardium of the auricle and ventricle, the curtains, cords and columns of the mitral valve, and oftentimes the neighboring myocardium are infiltrated with the products of inflammation. In the later stages fibroid changes occur with shortening of the cords

[1] Lettsomian Lectures on Valvular Diseases of the Heart, London, 1886, p. 134, et seq.

and columns and retraction of the mitral curtains, so that regurgitation is the result. When the endocarditis is of slighter intensity and more limited the inflammatory changes chiefly involve the mitral ring or its auricular aspect: the process spreads gradually from thence to involve the curtains, cords, and columns, which slowly undergo the changes of welding together and fibrous transformation. In the great majority of cases the form of endocarditis which initiates these changes is that which we find associated with rheumatism, though the other obvious signs of the rheumatic state may be extremely slight or even non-existent.

We may admit that endocarditis is the *only* manifestation of rheumatism in exceptional cases. Instances have been recorded in which endocarditis has been extensively found in the heart of the fœtus, although the mother has presented no signs of rheumatism nor deviation from normal health.[1] It is possible that fœtal endocarditis may have been the initial lesion of mitral stenosis in some cases, though these must be very exceptional. It is a tenable hypothesis that endocarditis of the rheumatic form may occur without sign or symptom subsequently to birth, and may progress to the induction of mitral stenosis. Nevertheless, it cannot be held as proven that the endocarditis which leads up to this lesion is invariably of the rheumatic form. It is at least possible that a form of endocarditis, sometimes met with in cases of chórea, where the granulations are not friable and not associated with inflammatory infiltrations, but are firmly adherent and seem like fibrous outgrowths of the endocardium, may have its origin apart from rheumatism. The most probable cause to effect this in child-life seems to me violence done to the valve-structure during the tumultuous action of the heart, brought about by nervous excitation. I have observed many cases which seem to me to enforce the lesson that there must be a causal relation between fright, endocarditis, and chorea. A hitherto healthy child, from some well-defined causes, suffers a sudden terror. After the lapse of a few weeks she (the subject is usually a girl) becomes choreic, and a murmur is audible in the mitral area. Usually this is systolic, but it may be presystolic, or there may be a simulated reduplication of the second sound. There are, as I have found in some cases, no signs whatever of rheumatism, no family history of rheumatic proclivity, nothing to warrant the assumption of a rheumatic change occurring.

We know that at the moment of fright there may be an arrest of the heart's action and the arterioles may contract—there is pallor of the surface or lividity. Then ensues a violent palpitation of the heart. It is highly probable that under such conditions the blood-pressure in the aorta, the arteries, and the cavities of the heart is profoundly altered and the mitral curtains or the aortic semilunar valves subjected to strain.

[1] Cf. Constantin Paul: Maladies du Cœur, p. 743.

The experiments of Professor Roy and Mr. Adami show that the consequences of overstrain brought about by artificially increasing the tension within the aorta are roughenings of, and ecchymoses in, those portions of the mitral flaps which are normally in apposition during systole.[1] It is not unreasonable to infer that the violence done to the delicate valve-structures of the child under the conditions of extraordinary terror may be the initial of a limited endocarditis which may induce regurgitation or may progress to stenosis.

I am well aware that this hypothesis needs confirmation from many observers before it can be generally accepted. I hold it proved that in all cases mitral stenosis is the result of endocarditis, that in the great majority of cases this endocarditis is due to rheumatism, but that in a small minority it may be due to other influences, amongst them overstrain within the heart.

A SEPTIC AND UNUSUAL FORM OF LUNG DISEASE EXISTING IN THE MISSISSIPPI VALLEY DURING THE YEARS 1886, 1887, 1888, 1889, 1890.[2]

By William Carr Glasgow, M.D.,

ADJUNCT PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE IN THE ST. LOUIS MEDICAL COLLEGE: PROFESSOR OF THE DISEASES OF THE CHEST AND THROAT IN THE POST-GRADUATE SCHOOL OF MEDICINE.

During the past three years an unusual form of lung disease has existed in the city of St. Louis and in many parts of the Mississippi Valley. In some cases it bears a striking resemblance to croupous pneumonia, although dissimilar in many of the symptoms and physical signs; in others the signs and symptoms would point to broncho-pneumonia; and in still others the diagnosis bronchitis would be made by a superficial observer.

The great prevalence of acute pulmonary disease and the increased ratio of mortality during the years 1886, 1837, and 1888 are shown clearly by the records of the Board of Health and of the City Hospital. Through the courtesy of Health Commissioner Dudley, I can present a tabulated statement of the number of deaths, and the ratio of deaths from acute pulmonary disease to that of the general mortality that occurred in the city during the winter months of 1886, 1887, and 1888. From these tables we see the great increase of mortality, both in the number of cases and the increased ratio to the general death-rate, from the winters of 1885 and 1886 to those of 1887 and 1888. In January and February

[1] British Medical Journal, December 15, 1888, p. 1325.

[2] Read before the Medico-Chirurgical Society of St. Louis, Jan. 7, 1890.

of 1886 we find two hundred and nineteen deaths, which is about nine and one-half per cent. of the total mortality; in January and February of 1887 we find two hundred and fifty deaths, about ten per cent. of the total mortality; and in January and February of 1888 three hundred and eighty-three deaths, about equal to sixteen per cent. of all deaths reported.

The records of the City Hospital, obtained through the politeness of Dr. H. N. Dalton, Superintendent, show the number of cases and the death-rate of the so-called pneumonias during the years of 1885 and 1886 as one hundred and thirty-five cases and thirty-nine deaths; 1886 and 1887, one hundred and thirty-six cases, fifty-four deaths; 1887 and 1888, ten months, fifty-four cases, twenty-five deaths. Dr. Dorsett, of the Female Hospital, reports a death-rate of five cases out of eleven. From these figures we will see the increase in the number of cases and the death-rate to be especially great in the winters of 1887 and 1888.

In 1887 the unusual and unexpected mortality of cases which I had classed as croupous pneumonia directed my attention to the subject, and I began to investigate this class of cases. Since that time I have seen one hundred and ninety-four cases, and from them I have obtained twenty-nine post-mortems. The greater number of these cases have been seen in the City Hospital, and in the St. Louis Mullanphy Hospital, and the post-mortem examinations have been made almost exclusively at the City Hospital by the internes of that institution.

In the earlier investigation, when the clinical signs and symptoms of the disease were still unsettled and undetermined, twelve of these post-mortems showed the ordinary pathological changes of pneumonia, croupal or lobular, and tuberculosis, whilst seventeen alone gave pathological evidence of an unusual form of disease. In all of these seventeen cases the pathological appearances corresponded in a striking manner, and varying only in a degree that would correspond with differences in the intensity of the disease. The difference in the macroscopical appearance of the organs from that seen in the ordinary forms of pneumonia —croupous, lobular, and embolic—was very apparent.

Post-mortem examination showed in all cases that the greater part of both lungs was in a condition of infiltration by a morbid material, and certain limited portions were in a consolidated condition. In the least infiltrated parts the lung was of a black-brown color; on pressure a firm, sodden feeling was given to the fingers, the normal pulmonary elasticity was wanting, still it crepitated with resistance, and when placed in water did not sink. In other parts of the lung the color was of a dark brown, the lung crepitated slightly, and on pressure gave a firm, resistant feeling not unlike a piece of beef; it would not sink in water. In still other parts the color of the lung was of a light brown, being in many cases of a steel gray; here the parts affected were absolutely

solid, no crepitation on pressure, and the piece would sink instantly when placed in water. In all cases the greater portion of both lungs was of a dark or dark brown color, whilst the light brown or grayish color was found in isolated parts. The consolidation occurred in irregular areas in the middle or lower border of the upper lobe. The apex was frequently found consolidated, and in three cases was converted into a solid mass presenting a light gray appearance. These areas of consolidation were always found in each lung, varying from the size of a walnut to that involving the greater part of a lobe. The areas were irregular in shape and presented no strictly defined limit such as we see in croupous pneumonia. *The inferior part of the left upper lobe posteriorly was the most frequent site of the consolidation.*

In all cases the liver was enlarged and softened; the spleen was of a light brown color, not much enlarged, but the substance was almost always softened. In two cases it was so pulpy that it could be taken out with a spoon. The heart was often softened, and in some cases could be torn easily; in three cases it was tightly contracted in systole. The kidney showed pathological changes; they were usually congested. and many were in a condition of parenchymatous nephritis. The venous system was invariably engorged with blood. This was especially seen in the portal system. The absence of serous effusion in the cavities, which should be expected from the condition of the venous system, was noticeable in a certain number of cases. In three cases a purulent effusion was found in the pleura, and in one a purulent pericarditis. Numerous microscopic examinations of these lungs have been made by Dr. E. M. Senseny, and he reports:

In the darkest portions, which swim in water, and where crepitation can be felt, the alveolar walls are seen infiltrated with leucocytes, the alveolæ themselves remaining free. In the dark brown parts, which crepitate sluggishly, and which swim in water, besides infiltration of the alveolar walls, he finds a partial filling of the alveolæ with leucocytes, white blood-corpuscles, epithelial débris, and occasionally some red blood-corpuscles. These cling to the walls of the alveolæ, leaving the centre more or less open. In the lighter portions, which do not crepitate and which sink instantly in water, he finds an infiltration of the alveolar walls and a complete filling of the alveola. The pathological condition of the lung corresponds to that described as existing in broncho-pneumonia.

Clinically the diseases may be divided into what may be called the parenchymatous and the bronchial type of cases—the parenchymatous where the areas of consolidation are extensive and rapidly developed, and where the symptoms show the greatest intensity of the disease; the bronchial type where areas of consolidation are wanting or limited, and where the disease hardly passes beyond what may be called the first and

second degrees. In these cases the symptoms are essentially different from those seen in the former, and were in some cases of so trivial a nature that the lung disease would have been overlooked unless attention had been drawn to it.

In the clinical study of the *bronchial* type we meet with a variety and a want of constancy in the symptoms. These may be said to depend on what may be called the intensity of the disease; still there is a certain similarity, and certain symptoms will be found to correspond closely to the presence of certain physical signs in such a way that the diagnosis cannot be doubtful. The disease usually commences suddenly in previous good health, with a severe chill or chilliness; this is followed by fever, which may only last from twelve to twenty-four hours. The fever may assume a remittent or an intermittent character, and may be interchangeable with hot flushes and chilly sensations. The tongue is usually clean, very rarely coated or furred. There may be a violent headache, with pains in the limbs and back; the pains in the back are especially about the coccyx, radiating into the pelvis and thighs. In some cases the pain is in the lumbar region; there is a stiffness of the joints and a soreness and tenderness of the muscles, with a general condition of great lassitude and prostration. Great dejection, low spirits with drowsiness, is a frequent symptom. The headache is often first frontal, then following the longitudinal sinus to the occiput; at times it is rather a feeling of fulness than pain. The body is often covered with profuse perspiration during the high fever; cold sweats alternating with hot flushes are very often seen. The superficial veins are swollen and engorged with very dark blood; this was especially noticeable in the tortuous, swollen temporal vein and the veins of the forearm. There is a cough, usually of a violent paroxysmal character, and a profuse discharge of a clear, viscid fluid. This fluid is so viscid that in some cases the cup may be inverted and the secretions will hang as a string. In some cases we find, instead of a paroxysmal cough, an incessant hacking cough, with a thick, viscid secretion that is expectorated with great difficulty. Marked inspiratory stridor, resembling that of spasmodic laryngitis, or whooping-cough, is often seen, the paroxysm ceasing with retching and the expectoration of viscid fluid. The cough is frequent at night, especially on lying down, and in the early morning hours. In children the secretion is often wanting, and the cough has a deep, brassy tone. Pulmonary hemorrhage is often one of the earliest symptoms. This may be a simple discoloration of the sputa, or it may be pure blood; it is usually recurrent, at intervals of several days. In other cases the hemorrhages recur at intervals of weeks or months.

Physical Signs.—On examining the lungs we find the changes in the respiratory sounds characteristic and pathognomic of the condition of the lungs. *The inspiration is lengthened, sharp, and of a high pitch, and*

immediately followed by a prolonged expiration of a lower pitch. This respiratory sound greatly resembles that heard in the first stage of asthma; the pitch, however, is higher.[1] In the earlier stages the inspiration is very prolonged, suggestive of a difficult lung expansion, with a short expiration of a lower pitch; there is an absence of the normal susurrus, and it is harsher and sharper than normal respiration. Later the inspiration becomes harsh, high-pitched, and shorter, followed by an expiration which is softer and of lower pitch. In some cases the harsh inspiration is alone heard, the expiration being absent. This peculiar respiration I believe to be due to the swollen, infiltrated condition of the bronchial mucous membrane—the same solid œdema of the mucous membrane that we see in the fauces in similar cases. Where the areas of consolidation exist, the harsh respiration gives place to the true bronchial respiration. In all cases we find this type of breathing present. In many cases we find the respiratory sound covered by the sonorous and sibilant râles. In some cases the whistling râles and the wheezing with the oppression resemble an attack of asthma. These are always transient in character; variations occur from hour to hour. Occasionally we find mixed with the inspiratory sound large-sized, subcrepitant râles of a dry character. These râles are heard in only a certain number of cases, on expiration as well as on inspiration. The rapid and striking modifications and changes in these respiratory sounds are noticeable features of the disease. The râles come and go, and the respiratory sounds vary in different degrees of harshness and softness. Striking and rapid changes may take place within a few hours. In some cases respiratory sounds are scarcely audible—in fact, there is a complete silence. This may continue for hours, when the characteristic breathing will be heard.

Percussion gives a peculiar wooden or deadened percussion sound, in which the pulmonary resonance is still recognizable, but the sense of resistance is greatly increased. In some cases the wooden percussion note has a distinct tympanitic character. If areas of consolidation are present, the complete dulness of consolidation will be apparent over those areas. There is always increased vocal resonance, or, rather, *vocal shock*, with *increased pectoral fremitus*, over that part of the lung where the deadened percussion sound is found.

The abnormal physical signs may be summarized as follows: a deadened percussion sound, increased vocal and pectoral fremitus, a harsh inspiration of high pitch, followed by an expiration of lower pitch, with the occasional presence of the dry and moist râles.

[1] William C. Glasgow: The Etiology and Mechanism of Asthma. AMERICAN JOURNAL OF THE MEDICAL SCIENCES, July, 1887.

In comparing the physical signs of this condition with those of an ordinary bronchitis, we find this difference:

Bronchitis.	*Bronchial Type.*
Percussion normal.	Percussion deadened; increased resistance; occasionally tympanitic.
Vocal fremitus and pectoral fremitus normal.	Vocal and pectoral fremitus increased.
The inspiration may be harsh, often feeble, but with no change of expiration.	Inspiration harsh and high-pitched, with prolonged expiration of lower pitch.
Sonorous and sibilant râles heard both on inspiration and expiration.	Râles largely inspiratory.
Constancy of abnormal sounds during attack.	Sudden and frequent variations of the abnormal sounds.

These characteristic sounds may continue from a few hours to several weeks. The usual time is between two and four days; when they continue into the third week it is probable that the tubercular process has been added to the original disease. Resolution usually takes place rapidly, and the abnormal physical signs are quickly replaced by the normal signs. There is often, however, a noticeable tendency toward relapse, and we see often after a few days, weeks, or months, a return of the abnormal physical signs with the presence of more or less of its symptoms.

In the *parenchymatous* type the disease usually commences with a chill, followed by fever. The thermometer usually ranges between 101° to 103° or 104°; in some cases reaches as high as 105°. The fever continues with morning remissions and evening exacerbations, but there is no strict regularity in its course. In some days we will find the highest temperature during the midday hours, or it may vary from hour to hour or day to day without any regularity. In fact, this want of a systematic regular course of the fever is one of the striking characteristics of the disease. The general height of the temperature varies greatly every few days without any appreciable cause. It will continue high for three or four days; then a remission of two or three degrees will take place, and again a high temperature will commence. During the remissions there may be repetitions of the chilly sensations, or hot and cold flushes. The fever continues to the end of the disease, and ends gradually by lysis. There is a marked absence of the crisis seen in croupous pneumonia.

In the first days of the attack the patient has a quiet and placid look, and the absence of subjective symptoms is very noticeable. The tongue is remarkably moist, healthy, in some cases slightly covered with fur in the middle; the dry typhoid tongue is a rarity. There may be no cough and

no pain in the side; headache, with a feeling of great lassitude, may be the only subject of the complaint. In some cases, rheumatoid pains in the limbs and in the back are present. The breathing is quiet, although the respiration is invariably increased. The ratio between pulse, respiration, and temperature shows a constant change and irregularity. Transient attacks of a feeling of oppression or suffocation come on, but these rarely last for any length of time. Later, the patient may experience great pain and tenderness in the lower border of the chest, about the upper border of the liver and spleen. This pain in some cases is very intense, and may last for twelve hours; it then disappears to reappear again at the same or some other place. I have known this pain to recur at irregular intervals during convalescence. It is entirely dissimilar from the nipple pain seen in croupal pneumonia. It is a myalgia not a pleural pain, and in some cases is widely different. In some cases it seems essentially neuralgic. During the whole course of the disease the same expression of content and well-being may continue in the face. There is no cyanosis or noticeable action of the accessory muscles of respiration. The skin is of a dirty white color, and, in some cases, tinged with yellow. The pulse is generally accelerated; not, however, to a marked degree. It usually varies from 100 to 110; in some cases it has risen to 120. It is full, or half full, and very compressible. I have noticed a marked slowness in several cases, and this continued up to the time of death. In one case where I happened to be present as the patient expired I could feel the slow, half full, very compressible pulse to the last. When it ceased at the wrist it could still be felt for a few seconds in the carotids, while the patient remained conscious and expired with a few gasping respirations. Profuse perspirations are very marked. In some cases they occur during the height of the fever, and again are seen like cold sweats.

On the second or third day a cough comes on with the expectoration of a viscid, ropy secretion. In some cases this occurred in great quantities; in others it was scanty, and expectoration consisted of rounded, isolated masses of a substance resembling mucine. These masses were usually expectorated with great difficulty. The cough is, as a rule, a full, free cough—what may be called a tracheal cough, and is caused by the effort to expel the accumulating secretions. Occasionally it occurs in paroxysms. In some cases blood was mixed with the expectorated secretion, and it had a strong resemblance to the rusty colored sputa peculiar to croupous pneumonia. The color, however, is rather darker, and pure blood is almost always present in these cases. In some cases free hemorrhage has been seen; in fact, it has occurred on the onset of the disease. The blood is usually dark, and is often mixed with black clots. When the hemorrhage occurs it is generally recurrent, appearing at intervals of one, two, or more days. The hemorrhage may be in

amount from half a drachm to a pint. In one case, an infant of seven months, a large hemorrhage produced death. The child had been ill two months with a pneumonia contracted in California. It is a noticeable fact that the viscid secretion always ceased with the appearance of a pure hemorrhage, and again reappeared later. In the later stages the viscid sputa shows a purulent character, this continuing for days or weeks. The purulent sputa may, however, disappear for a time, to be again replaced by the clear, viscid sputa. As the disease progresses, during recovery, a muco-purulent secretion is observed. The history and varying changes in the character of the sputa are most interesting and remarkable characteristics of the disease. The causes of these changes are unknown, as there is nothing in the clinical history that can account for them. In fatal cases, in the last days there is an absence of the cyanotic condition seen in croupous pneumonia. The death is quiet and peaceful; it may occur at the most unexpected times, and at times when the patient shows most favorable symptoms.

Physical Signs.—On percussion, even in the first days of the attack, a deadened or a wooden percussion sound is generally apparent over parts of both lungs; over irregular areas of either one or both lungs we find a more complete dulness, almost flatness. The most frequent site of the flatness is the posterior portion of the lower part of the left upper lobe, immediately under the lower edge of the scapula. Next to this, the left upper apex was most frequently affected. As a rule, several areas of flatness were found in each lung. The pectoral fremitus was invariably exaggerated over those portions of the lung giving the wooden percussion sound; over those portions giving the flat sound it was greatly increased. On auscultation over the flat areas bronchial breathing could be heard; and over those portions of the lung which gave the wooden percussion sound a harsh, high-pitched inspiration, with a prolonged expiration, was always heard with varying degrees of intensity. Vocal resonance, or, rather, the vocal shock, was always increased over the flat areas, giving a true bronchophony; and over the deadened areas a marked increase in the vocal shock was present. As the disease progressed the only change in the vocal sounds was seen in the occurrence of the adventitious râles. Over the consolidated areas very frequently small mucous râles could be heard mixed with the bronchial breathing. This occurred both on inspiration and expiration. The sonorous and sibilant râles were also heard from time to time in the other portions of the lung. In no case was the true crepitant râle heard. The physical signs of abscess of the lung were found in two cases, which made a complete recovery. At times, in some cases, there would be a complete dulness on percussion, with increased pectoral fremitus and vocal shock, and a complete absence of the respiratory sound over that portion of the lung. In a few hours the bronchial breathing would be heard. As

resolution advanced there was a rapid change in the physical signs. The dulness gave place to normal percussion sound, while the increased vocal shock and resonance disappeared, and the bronchial breathing gave place to a rather harsh vesicular breathing. The râles disappeared later than the other physical signs. When resolution was delayed the physical signs continued. In many cases amphoric breathing would be heard. In two cases this was heard at the apex and in one at the angle of the scapula. The post-mortem in these cases showed a complete consolidation of lung tissue at these points. During the course of the disease attacks of palpitation are quite frequent, with a tendency to heart failure.

It will be interesting and instructive to compare the clinical history and the signs of this disease with those found in croupous pneumonia. In certain points there is a great similarity, and in others the difference is so great that a differential diagnosis would be made.

Croupous Pneumonia.	*The Parenchymatous Type.*
The chill not repeated.	The chill repeated, with occasional hot and cold flushes.
Fever of a regular type, terminating most frequently by crisis.	Fever irregular, terminating by lysis.
Sharp, lancinating pain about the nipple, disappearing after a few days.	No pain in the commencement, but later through the lungs, and especially over the lower lobes.
Cough in early stage constant, painful, and suppressed.	No cough at first; later cough on expectoration.
Face distressed in early stage of the disease, with red spots on cheeks, face becoming cyanotic and livid as the disease progresses.	Face has a calm, restful look, usually somewhat pale, with rather a dirty white color.
Pulse hard, rapid, small, becoming very much accelerated toward the end.	The pulse full, compressible, rarely over 120, in some cases very slow.
Respiration in earlier stages quickened, suppressed, and shallow; in later stages deep, labored, and heaving.	Respiration not visibly accelerated. Ratio between pulse, respiration and temperature irregular. In the last stage respiration often quiet and slow.
On percussion a dulness, usually following the line of the lobes, most frequently the lower lobes. Respiratory sounds mostly normal over remaining parts of lung.	On percussion a flatness in irregular areas, affecting most frequently the middle and upper lobes; deadened percussion sound over other parts of lung, with increased vocal and pectoral fremitus.
On auscultation the crepitant râle heard in early stage; a râle redux in later stages.	The crepitant râle absent; the râle redux not recognizable.

Croupous Pneumonia.	*The Parenchymatous Type.*
Bronchial breathing, gradually becoming broncho-vesicular and vesicular as resolution takes place.	Respiration is bronchial over the dull area, and over the remaining portion of the lung a harsh, high-pitched inspiration, with a prolonged expiration of lower pitch on resolution changing rapidly to the normal respiratory murmur.
Sputa small in quantity, always viscid, almost always rusty colored.	Sputa may be profuse, a clear, viscid fluid often mixed with blood—becoming later purulent.
Death agony prolonged, with labored breathing and a general condition of cyanosis.	Death sudden, with a few gasping respirations; peaceful.
A sero-fibrinous or fibrinous pleurisy occasionally found.	Purulent effusions in pleura, pericardium, and other cavities.

In the Mullanphy Hospital three cases during convalescence from pneumonia died in a state of coma, with paralysis and symptoms of meningitis, and one case on post-mortem showed the rupture of a softened artery and a blood-clot in the brain. A mild delirium is sometimes seen with hallucinations. One case during convalescence had facial erysipelas with abscess of the eyelids, and later enlargement and suppuration of the maxillary glands. In the other, erysipelas preceded pneumonia, and the patient died during the latter. In one case an attack of pneumonia was followed by peritonitis, to which the patient succumbed. In the City Hospital in many cases the symptoms of acute nephritis have been added to those of the lung disease. On December 27, 1889, a patient entered the Mullanphy Hospital with acute nephritis, suppression of urine, and general anasarca. On the second day after admittance he began to expectorate quantities of viscid sputa mixed with blood, and on examination the physical signs of broncho-pneumonia were found. Gastro-intestinal disturbance has been the initial symptom in several cases. Two cases were admitted into the City Hospital with such violent vomiting and purging that poisoning was suspected. The following day the signs of broncho-pneumonia were well developed. Skin eruptions with glandular enlargement have been frequently observed. The herpetic eruptions and purulent bullæ have been most frequent. In one case an erythematous blush over the whole body somewhat resembling scarlet fever was observed. Numerous cases have complained of violent otalgia, and in many of these there has been an œdematous, swollen condition of the external ear. This occurred frequently during convalescence. Pericarditis has occurred in several cases. The parenchymatous consolidation may continue with the usual symptoms and physical signs from five to thirty days, and still resolution with recovery may take place.

That these two classes of cases are types, rather than stages, of the same disease is evidenced by the fact that clinical observation has proven that the typical condition, as observed, remains through the whole course of the disease. In the cases under my observation the bronchial type never merged into the parenchymatous, and the parenchymatous type, with its extensive consolidated areas, is observed on the first days of the illness. Observation of a certain number of cases of both types during the past two years has conclusively proven that when the process continues a certain length of time the result in both classes of disease is tubercular disease. The period when the tubercular process is added to the bronchial pneumonia is still uncertain, but from my observation I can safely say that when the symptoms and the physical signs continue for one month there is a strong probability that the bacillus tuberculosis will be found in the sputa. In a few cases careful and repeated examinations of the sputa were made by Dr. E. M. Senseny in the Mullanphy Hospital, and he finds that the bacillus appears about the third week of the disease. The appearance of the bacillus coincides in many cases with the change of the sputa from the clear, viscid fluid to the viscid, purulent secretion. At this time the expectoration may become of the typical tubercular type, showing the minute white particles, and a microscopic examination reveals the bacillus tuberculosis in enormous numbers. I can, however, mention two cases where the consolidation continued six weeks; both these patients recovered; no bacillus could be found in the sputa. Some have claimed that the bronchial type of cases are simply cases of tubercular disease, but repeated examinations of sputa by Dr. Senseny, and numerous microscopic examinations with cultures and inoculations of the lung tissues made by Dr. Bremer, have positively proved the absence of the tubercular bacillus in the early stages of the disease. It seems to be pretty well established that the condition of lung tissue in this disease proves a most fertile soil for the development and growth of the tubercular germ. This may account for the fact which I have observed during the past few years that the number of persons showing tubercular disease has greatly increased, and this is true of persons in whose families no hereditary disease or disposition can be found.

The question of the contagiousness of this disease is still an open one, but many facts have occurred that seem at least to suggest it. Last winter, when a ward in the Mullanphy Hospital contained four cases of this disease, several other cases with different forms of disease began expectorating the viscid, gelatinous sputa similar to that of the pneumonic cases, and the viscid sputa did not entirely disappear from the ward until the walls had been washed and cleaned.

I am informed by Dr. Senseny that in the female ward it was noticed

that the patients occupying the adjoining beds to the pneumonic cases seemed to contract the same disease in the mild form.

In the City Hospital many cases have occurred in the surgical ward, where the patients had long been occupants of the hospital, and confined to bed by their injuries.

That the disease is a septic disease cannot be questioned after a consideration of the post-mortem appearance of the organs. That it is primarily due to some change in the blood, possibly the presence of a microörganism, seems most probable from a clinical study of the disease. The microscope shows the presence of broncho-pneumonic infiltration of the lung tissue, but that this is a secondary process is self-evident. No local inflammatory disease could be associated with such a disorganized condition of the other vital organs, these conditions being essentially that produced by sepsis.

The microörganism causing this septicæmia I must leave others to investigate. In this age of bacteriology, with the modern improved methods of research and investigation, the solution of the problem cannot long be delayed.

In a paper read before the Eleventh Congress of the American Laryngological Association, held in Washington in June of last year, I read a paper entitled "An Œdematous Form of Disease of the Upper Air-passages."[1] In this paper I described a peculiar condition of the upper air-passages, accompanied by symptoms showing a close similarity to those seen in the disease of the lungs described in this paper. The similarity was especially marked in the nature of the viscid fluid which was expectorated, and in the venous engorgement and the character of the symptoms. I claimed in this paper that the throat disease was only a manifestation of a general constitutional condition, and that a similar disease existed in the bronchi and the parenchyma of the lung. I was also justified in this conclusion from the fact that in a large number of these cases of lung disease the palate and uvula will be found in the condition of solid œdema described in my former paper, and I could only reasonably conclude that the diseases of the upper air-passages—the bronchi and the lung parenchyma—are all different manifestations of the same process, varying only in different degrees of intensity.

In my former article I suggested that probably this disease, from the similarity of the symptoms, might be the "influenza," so graphically described by Graves, or the "grippe" of Valleix; but in the absence of any definite description of the pathological condition found in influenza, I was not justified in so naming it. At the time this paper was written, April, 1889, there was no notice of the presence of influenza in any part

[1] W. C. Glasgow, M.D.: An Œdematous Form of Disease or Septic Œdema of the Upper Air-passages. New York Medical Journal, August 10, 1889.

of the globe, and it seems strange that a disease which has always occurred in waves, spreading rapidly over large portions of the world, should show itself as a sporadic form of disease. However, the throat disease described in my former paper and the lung disease the subject of this article were not confined to this part of the country. I saw one of these cases of septic broncho-pneumonia originating on the Mexican Plateau, one in Colorado, one in El Paso, Texas, one in California, and one in Galveston, Texas. Cases of the throat disease originated in Boston, Brooklyn, New York, Philadelphia, Pittsburg, and New Orleans. At the meeting of the American Medical Association in Cincinnati, 1888, Dr. Carl Seiler, of Philadelphia, was the only physician of many whom I consulted that had recognized the peculiar throat affection. In May, 1888, Dr. R. P. Lincoln, of New York, described to me an obscure case of lung disease he had seen with Dr. Loomis, and from the description I recognized one of the cases described in this paper. If this disease is the influenza, we have had numerous cases in this country three years preceding its appearance in Europe. During the winters of 1886, 1887, and 1888 they were numerous, and during the past summer and autumn a number have been seen in the hospitals of this city. The number of cases began largely to increase during December of 1889, and at the present time there are a large number in the City and Mullanphy Hospitals. During the month of January, 1890, while the epidemic of influenza prevailed, large numbers of these cases appeared in St. Louis. The greatest number have been of the bronchial type. They have occurred as a relapse of the influenza one, two, three, four, and six weeks after the initial attack.

Three years ago, when the parenchymatous type of this disease was considered as croupous pneumonia, it was treated by the stimulant plan usual in this disease. The sudden and great mortality proved the uselessness of this form of treatment. From the success attendant on the use of benzoate of soda in the œdematous disease of the upper air-passages, I was led to use it in this condition of the lung, and the success and the greatly diminished mortality were so striking that I am convinced it is the best remedy for this class of cases. My individual experience is in accordance with that of the gentlemen in charge of the City Hospital, who have found a greatly diminished mortality since the benzoate of soda treatment was introduced. I usually give large doses of the benzoate of soda with acetate of ammonia, and supplement this with large doses of muriated tincture of iron, with a moderate use of stimulants. The excessive use of stimulants is injurious, as at the critical periods the heart cannot respond. The addition of the salicylate of soda in some cases to the benzoate seems to be useful. In certain cases large individual doses of quinine will be necessary to bring down the temperature when it becomes too high, and as there is a constant tendency to heart failure

the use of digitalis and the other heart tonics and diffusible stimulants will often be necessary. *Careful and constant attention is absolutely necessary. Many patients die who might be saved by the timely administration of a stimulant in threatened heart failure.* Antifebrin has also been used with a certain amount of success in the City Hospital.

In conclusion, I would publicly express my thanks to Dr. Dalton, Superintendent of the City Hospital, who has placed the large material of that hospital so freely at my disposal, and also to the physicians in attendance at that institution during the past two years. Their interest in the investigations of this disease, their post-mortem examinations, and their confirmation of the symptoms and physical signs as embraced in this paper will strengthen the views I have advanced. My thanks are also due to Dr. L. Bremer, Professor of Physiology and Bacteriology in the Missouri Medical College, who has assisted at most of the post-mortems.

NOTES ON SOME OF THE RELATIONS OF UNDERGROUND AIR AND WATER TO QUESTIONS OF PUBLIC HEALTH.

By David Page, M.D.,
LOCAL GOVERNMENT BOARD, LONDON.

In the model series of by-laws for the regulation of new streets and buildings, prepared by the English Local Government Board for the guidance of sanitary authorities, are two clauses of which the express object is to secure wholesome sites for dwelling-houses.

One of these clauses provides that:

"A person who shall erect a new building shall not construct any foundation of such building upon any site which shall have been filled up with any material impregnated with any animal or vegetable matter, or upon which any such matter may have been deposited, unless and until such matter shall have been properly removed, by excavation or otherwise, from such site."

The other clause is as follows:

"Every person who shall erect a new dwelling-house shall cause the whole ground surface or site of such building to be properly asphalted or covered with a layer of good cement concrete, rammed solid, at least *six inches* thick."

The first provision aims at preventing the danger obviously arising from the erection of houses upon sites which have been made by the obnoxious practice of "tipping" or filling up clay pits and inequalities of the ground with house and other organic refuse prone to putrefaction or decay, while the second has for its special object the protection of the household from the risks to health involved in the passage of dampness and foul air from the foundations into the interior of a dwelling.

It is unfortunate for the efficiency of local administration that sanitary authorities, large and small, have been slow to recognize the importance of these provisions, which, too generally, they have either neglected to adopt, or, having adopted, shown by an arbitrary and inconsistent application, their misapprehension of the real object in view. This is particularly the case in regard to the second of these essentially preventive measures against disease. An authority adopts the by-law and proceeds to enforce it in houses built upon an impervious clay subsoil, but waives it in those built on gravel or sand, in accordance with popular notions as to the dampness of the one and the dryness of the other, thus failing to appreciate the fact, less obvious than the dampness of a clay soil, that porous sands in general may, by reason of this very quality of porosity, give rise on occasion to special and even more serious dangers to health.

The influence of soil in its relation to health and disease is one of the oldest and has always been one of the most prominent subjects of medical disquisition, from a time even before Hippocrates, in whose works it is dealt with as one of the material conditions affecting life.[1]

At one or another epoch, so-called telluric influences have been successively invoked to account for all that was inscrutable or especially disastrous. Such for instance was the explanation held by leading physicians of the age as sufficient to account for the epidemic visitations during the fourteenth century of the pestilence known as the Great Mortality or Black Death—the disease which by its ravages in Florence gave Boccaccio the narrative of the *Decameron:* of the Sweating Sickness in its recurring epidemics from nearly the end of the fifteenth until the middle of the sixteenth century, and of the later visitations of the Plague.

But in these, as well as many other instances outside the class of epidemic diseases, the question of cause remained merely a subject for curious and bewildering speculation, which continued to serve the purpose of the science of the times with little change beyond what might be incidental to succeeding phases of thought down to quite recent years.

It is entirely a result of the modern progress of clinical medicine and as a direct consequence of more accurate diagnosis and identification of disease, that inquiry into causation has reached the precision of method it follows to-day. In relation to our present subject, *bahn brechende* (to employ a felicitous German word) observations of Pettenkofer upon the connection between outbreaks of enteric or typhoid fever and changes in the soil associated with variations in the level of the ground water, may be claimed as the starting-point of the interesting series of investigations

[1] Hippocrates: Lib. de aere, aquis et locis.

which have since been carried on into the influence of meteorological and topographical conditions in determining the prevalence of disease.

Although later inquiry into outbreaks of enteric fever or cholera has not confirmed the importance attached by Pettenkofer to changes in the soil as a *general* condition of the spread of these diseases, the weight of evidence being conclusively in favor of other agencies, as contaminated drinking-water and the air of infected sewers, yet the possibility of the influence of such changes as a localizing condition, which the greater frequency of other agencies may cause to be overlooked, ought not to be lost sight of. This remark applies especially in those outbreaks of a peculiarly circumscribed character apparently unassociated with water or sewer infection, where, in the absence of known introduction of disease, the observer is inclined to assume a genesis from some coincident insanitary circumstance. But, apart from the etiological value of this theory, Pettenkofer's distinctive merit has been to direct attention to the exact investigation of the local and seasonal relations of epidemic disease, while he was one of the first to recognize and to stimulate observations, such as those of Professor Fodor, of Buda-Pesth,[1] carried on continuously and systematically over a series of years into the intricate problems presented by this wide field of epidemiology.

The physical circumstances of soils largely determine the facility and area of distribution of the air and water contained within their pores, a loose and open soil giving opportunity for considerable freedom of movement. Air under these conditions readily responds to the laws of expansion of gases, changes of temperature and of barometric pressure, and mingles directly and by diffusion with the upper atmosphere, with which it is in effect continuous.

The action of wind upon the surface has been shown to set in motion the subterranean atmosphere, and the same result is brought about by fluctuations in the level of the ground water below it.

In well-paved towns, where the open spaces about the houses are flagged or cemented but the sites of the houses themselves are unprotected and formed merely by the natural surface, the ground air has then its chief outlet into the houses, its ascent being materially aided by the warmer temperature and the aspirating action or suction of the house fires. Where cellars or basements exist, with walls in immediate contact with the soil, instead of being cut off by an outer open area, this effect is enhanced, as ordinary brick or stone and mortar walls allow very considerable transpiration of air. Fodor has shown that the penetration of ground air into house basements takes place with marked intensity in comparison with houses merely built upon the ground level. In porous

[1] Hygienische Untersuchungen über Luft, Boden und Wasser, insbesondere auf ihre Beziehungen zu den Epidemischen Krankheiten.

soils the ground air may be drawn for considerable distances in a horizontal as well as vertical direction, bringing with it impurities and effluvia from quite unsuspected localities.

The underground or subsoil water as distinguished from mere moisture or humidity exists at varying depths from the surface, determined by the existence of underlying impervious layers holding it up and upon facility of outlet. The flow of rivers and conditions of rainfall bring about fluctuations of level in this subterranean sheet of water. In a porous soil the movement of water may be perceptible over a considerable area.

Förster, of Breslau, cites an instance where, after construction of a gasometer, the wells of the locality became impregnated with the smell of coal gas. At first it was conjectured that the gas mains were leaky; but it was noticed that the water of the gasometer tank fell and had to be renewed from time to time. This tank was cemented and made watertight and the wells meanwhile pumped out and cleansed, with the result that no further leakage of the gasometer or contamination of the wells took place. The distance from the one to the other was upward of 560 paces. Other instances might be given, but this may suffice to show the extent of movement of underground water and at the same time the risk of pollution to local sources of water supply.

The moisture or dampness of a soil is dependent on the movements, including evaporation and capillary attraction, of the underground water, and also upon rainfall. When the conditions of water-logging are such that the soil is constantly moist or wet, then, whether it be clay or gravel, the effect will be similar, and evaporation, which is known to be more rapid from a porous solid than from the surface of a sheet of water, is continuously going on and causes those sensations of coldness and rawness which are familiar characteristics of such soils.

Where organic impurity exists, the process of oxidation on the one hand or putrefaction on the other will be determined by the greater or less amount of air and moisture present and the conditions favorable to bacterial life. For it has been shown by recent investigations on this subject that the processes at one time attributed to chemical energy alone are now largely influenced by microörganisms of one or another kind. The process of nitrification or production of nitrates in the soil, at one time regarded as a result of chemical oxidation, has been found to be brought about by the action of a bacterium. When, however, under limited access of air putrefaction occurs, different species of bacteria are concerned in the process. Sandy or gravelly soils from their porous character are more favorable to oxidation and rapid decay than clay or close soils. And the significance of this to health is obviously that a soil which oxidizes quickly will not retain hurtful, and it may be infectious, matters, which by a soil of opposite character may be retained for an

unknown length of time, and, on opportunity, be communicated to the air or water.

From these considerations it follows that a well-aërated soil affording unobstructed movement to the air possesses greater power of getting rid of its organic impurities than one of an opposite quality, and is in the same degree less likely to be a nidus for the germs of disease.

The source of the ground air is primarily the atmosphere at the surface. Penetrating to depths dependent upon freedom of access and level of the ground water, the chemical constitution of the air becomes changed, the most remarkable result being the largely increased proportion of carbonic acid. The richness of ground air in this gas was first ascertained by the distinguished French chemist, Boussingault, in his researches into agricultural chemistry, who found that the amount reached 97.4 per 1000 volumes, the proportion of carbonic acid in the atmosphere being only 3 or 4 per 10,000 volumes.

Later experiments by Pettenkofer and others have confirmed these observations, the amount being found to vary with season, locality, opportunity for decomposition of organic substances, and to increase with depth from the surface. Thus Fodor found it to be 101.9 per 1000 at the depth of one metre (39 inches) and 376.1 at a depth of 4 metres (13 feet). Thus the carbonic acid of the ground air is apt to accumulate in wells, rendering the air irrespirable. It may be taken as a measure of the impurity of the ground air, and in soils of similar characteristics of density affords a corresponding indication of the changes going on. In compact soils the amount of carbonic acid is comparatively greater than in porous soils, even where the latter are less pure, a result which is dependent upon the less facilities for ventilation and circulation of air such soils possess. The influence of the ground air upon the atmosphere has been shown by Fodor to be remarkable and to a large extent unexpected, but to this interesting part of the subject the limits of this paper permit only incidental reference. Observations of the amount of carbonic acid in the atmosphere have shown that while the amount is pretty constant within narrow limits, variations of a minute but well-marked order occur throughout the year. He found the amount lowest in winter, increasing in spring, falling slightly in the summer months and reaching its maximum in autumn, September to November.

But there are also daily oscillations in the amount of carbonic acid, which are most considerable in autumn, the end of spring, and the beginning of summer, the greatest constancy being observed in winter and early spring.

At night the amount of carbonic acid in the air was greater than during the day in autumn, but less in spring. Rainfall was found to diminish the amount of carbonic acid, but whilst this effect was permanent in winter, in summer it was followed shortly afterwards by a marked

increase. On the other hand, frost increased, then diminished, the amount of carbonic acid.

Lastly, in relation to atmospheric pressure, Fodor found that in winter the carbonic acid increased with increased barometric pressure and *vice versa*, while in summer the converse was observed, the carbonic acid increasing with diminished pressure.

His later observations prove that not only the whole of the changes are dependent upon the ground air, but that the ground air is the chief source of the carbonic acid in the atmosphere.

He found the lowest stratum of the air next the ground to contain more carbonic acid than the higher strata, and that the fluctuations of the carbonic acid in the lower stratum according to season and the like, preceded similar changes in the higher regions.

The soil was found also to possess the property of absorbing and therefore diminishing the amount of carbonic acid in the atmosphere, the lower stratum becoming poor in amount and notably in rainy days, in spring, and during thaw, thus explaining some of the changes already described.

Depending in the first instance upon the decomposition of organic substances within the soil, and varying in amount with the greater or less degree of impurity, the carbonic acid thus escaping into the air shows the constant ascent and diffusion of the ground air and that this is greater in autumn and summer. This ascent of ground air into the atmosphere is accompanied by a corresponding ascent into dwelling-houses, greater at night than in the daytime on account of the greater warmth and rarefaction of the ground air, during these seasons of the year. From these considerations Fodor concludes that the atmospheric carbonic acid is in chief part a product of the changes going on in the soil, and in its variations is an index of the rising of the ground air and the extent of its pollution by processes of decay. The question remains unanswered how far the ground air and its escape into the upper atmosphere influence the development and spread of infectious diseases.

The ascensional force of air streaming from the ground has been shown to be considerable, and to be capable not only of conveying gaseous or volatile substances and effluvia upward, but also particulate matter bearing microörganisms. To what extent microörganisms thrive in the deeper layers of the soil has not yet been determined. In some recent observations in Germany upon bacteria in drinking-water it was found that by hard pumping of wells the bacteria almost completely disappeared, from which it was concluded that the deep-ground or spring water was nearly free from them, and that the source of their entrance into the well was from the air or upper layers of the soil. Observations as to the influence of season led to similar conclusions, the microörganisms increasing in number between April and October, after which they

became fewer in amount, their numbers running parallel to the temperature of the superficial layers of the soil.

But how far the soil may be the brooding-place of pathogenic bacteria; how far in relation to certain of the life-processes of such bacteria it may play the part of an intermediary host, is still unknown. The observations of Buchanan, in this country, and of Bowditch, in America, upon the undoubted influence of damp soil in causing consumption, the effects of marsh air in producing malarious and other paroxysmal fevers, and the general ill effects commonly observed to be exerted by an impure and undrained soil upon the health of persons living upon it, all point with more or less confirmation to the associated life-proceses of lower organisms with those conditions of ground air, ground water, and organic change which, in their interaction and its results, constitute an unhealthy soil.

ON THE RELATION OF IMPETIGO HERPETIFORMIS (HEBRA AND KAPOSI) TO DERMATITIS HERPETIFORMIS (DUHRING).

By Louis A. Duhring, M.D.,
Professor of Skin Diseases in the University of Pennsylvania.

As there have been considerable discussion and some diversity of opinion as to the propriety of grouping impetigo herpetiformis under dermatitis herpetiformis, I desire briefly to present my reasons for having originally adopted this view. It may be well to premise my remarks with the statement that heretofore, in my several communications on this disease, I have confined my observations largely, if not exclusively, to the cutaneous manifestation—to the skin disease proper—with the idea mainly of calling attention to the multiform phases of the disease. The symptoms alone, it may be said, have up to the present time received attention; the equally, if not more, important subjects of etiology and pathology being for the time intentionally slighted. In all rare or obscure affections the eruption itself, including its history, symptoms, evolution and involution, is first to be considered. After these points have been determined upon, as far as the material at hand will permit of, the questions of the cause and nature of the disease naturally follow for investigation and discussion. In addition to the clinical memoranda and observations presented from time to time, I have sought to bring together into one group such previously reported cases, scattered throughout literature, and certain other allied forms of disease, as seemed to me might properly be included under one head. Circumstances have, for some time past, prevented me from con-

tinuing my study on the subject, which will account for what may seem indifference or neglect of the question.

It is now over five years since I first called attention to a disease of the skin, which, up to that time, had not received special notice. A number of cases of a peculiar cutaneous disease had, from time to time, previously come under my observation, all possessing certain striking features in common when viewed in their totality—that is, throughout their complete history, including relapses. There existed manifestly several quite different varieties of the affection, as shown by the presence in some instances of a decided predominance of certain lesions, while in other cases different forms even prevailed. But beneath this cloak of multiformity, and notwithstanding the occurrence of diverse lesions simultaneously or of those which made their appearance from time to time as the affection ran its course, certain striking pathognomonic symptoms could not fail to impress themselves upon the observer, showing the existence of a peculiar and undescribed disease. Had a few cases only been encountered at long intervals, these features might not have been recognized so readily.

As the disease represented by these examples was practically unknown and had no place in literature, it seemed necessary to bestow upon it a title. The relatively large number of cases that I had encountered seemed to warrant such recognition. By reason of the uncertain and variable character of the eruption, of its conspicuously diverse primary lesions and their distribution and arrangement, occurring in the several forms or varieties in which it usually appeared, and, moreover, because of its distinctly herpetiform feature, the name dermatitis herpetiformis was selected. The term dermatitis, owing to the idea of widespread or general and varied inflammation thereby conveyed or implied, and because of its being non-committal as to etiology and pathology, appeared to meet the requirements better than any other that suggested itself; while one of the most distinctive characteristics was made plain by the word herpetiform. To this latter point I wish to direct special attention, and I would here say that the herpetiform element has been present in all of the cases (now, perhaps, twenty in number) that I have seen, in some instances marked, in others existing to a moderate or only a slight extent.

As the matter stands to-day, the disease is sufficiently well defined to be readily recognizable by all observers, where typical cases are concerned. I cannot well see how pronounced forms, especially if held under observation long enough to note the ever-changing lesions and the varied aspect of the eruption, can be confounded with other better known affections. In ill-defined, atypical forms it is, of course, liable to be mistaken for certain other diseases to which it may bear more or less resemblance, more especially erythema multiforme, herpes iris, pem-

phigus, and eczema, according to the views held by the observer, precisely as in other doubtful forms of skin disease. Thus, for example, as is well known, discrepancy in diagnosis is not infrequently encountered in eruptions characterized by the formation of blebs, one observer regarding all such manifestations as varieties of "pemphigus," another merely as instances of "bullous disease,"—a vague, non-committal expression, plainly indicating an unwillingness on the part of the observer to subscribe to the view that every bullous eruption must necessarily be pemphigus.

The relations of dermatitis herpetiformis to erythema multiforme, herpes iris, and pemphigus, are, I need not say, most interesting and important topics, to which I naturally have had my attention directed. But these subjects cannot be entered upon without a great deal of discussion. Here, at once, arises the matter of definition. For example, how shall these diseases—erythema multiforme, herpes iris, and pemphigus—be defined? What forms of eruption shall be included and what excluded under these names? Shall the old, time-honored, classic definitions continue to be observed, or should new ones be framed to take in enlarged views concerning these processes? This question cannot be entered into at present, nor do I wish now to speak of the relation of dermatitis herpetiformis to the diseases just cited, nor to any other vesicular, bullous, or pustular affections, except one, namely, the impetigo herpetiformis of Hebra.

At this point I must be permitted to go back a few years, in order to make my position, views, and reasons therefor clear. As is known to all, Hebra described, in 1872, a grave, pustular disease of the skin, of which several instances had, from time to time, been observed at the Vienna General Hospital. The description given was brief, and in the dermatological world at large the subject attracted comparatively little attention. Dermatologists in other parts of Europe and in this country seemed at a loss to identify or recognize the disease. In the United States it did not seem to be known. My American fellow-dermatologists in the large cities, with whom I conversed, were not familiar with it, nor was I myself able to reconcile Hebra's description with any of the pustular affections encountered in my field of study. Nor was the disease recognized either in France or England. Moreover, considerable confusion existed even in Vienna, competent observers there being by no means of the same opinion regarding the disease and its proper classification. Thus, Hebra himself first looked upon it as belonging to the herpes group, and called it "herpes impetiginiformis," with the idea that it was a form of herpes; subsequently he regarded it as an herpetiform impetigo. Nor was the subject materially elucidated by the publication of several of Hebra's original cases by Auspitz and by Geber, the first of whom looked upon it as herpes, calling it "herpes vegetans,"

while the latter also endeavored to prove it to be herpes. Then Neumann, who was without doubt familiar with Hebra's cases, emphatically designated it herpes, terming it "herpes pyæmicus" or "herpes puerperalis." Even at this later date, notwithstanding all that had been written by the Viennese dermatologists, the subject was far from clear to the minds of foreign dermatologists. The consensus of opinion on the part of the Vienna observers, however, seemed to be that the disease was an undescribed form of herpes, as is evidenced by the names decided upon by the several reporters. Nor, finally, was the matter made plainer by Hebra himself, who stated that the case previously reported by himself and Baerensprung as "herpes circinatus" and figured in their atlas of skin diseases, was also an example of this same disease, namely, impetigo herpetiformis. It need scarcely be said now, in passing, that if the views (to be referred to) recently put forth by Kaposi be accepted, this peculiar case must be excluded from the list. No further examples were at this period reported, and the matter for the time being remained quiescent.

In the meantime, in Philadelphia, during this epoch (from 1870 to 1880), a series of cases of an unknown, inflammatory, polymorphous affection of the skin had come under my observation—some in hospital, others in private practice. Among these was one which, when it first was brought to notice, appeared to me (and to other physicians who saw it) to be an example of the impetigo herpetiformis of Hebra. It apparently represented a mild expression of that disease and showed the chief clinical features depicted in one of the portraits (case of 1871) in Hebra's atlas. The resemblance was striking. The cutaneous manifestation was altogether novel, and I was unable to classify it elsewhere.

The patient was a woman. The eruption was general and extensive, and was exclusively pustular (with no signs of erythematous, urticarial, vesicular, or bullous lesions) and crusted, the pustules being whitish and yellowish, and of varied shapes and sizes, some being distinctly elevated and somewhat conical or rounded, others flat; some were miliary, others small, pea-sized, and some larger; all being seated on more or less inflamed bases or arising from inflamed patches. The eruption, as a whole, was, moreover, herpetiform, showing a distribution and arrangement *here and there* similar to that seen in imperfectly developed or abortive herpes zoster. The lesions themselves were *irregularly* grouped, as is sometimes noted in small discrete patches of zoster. The central pustules, often aggregated in little bunches of two, three, or four, were small but of variable size; the older ones were more or less crusted, and were closely encircled in an incomplete, broken manner, with new, for the most part sparse, flat, minute pinhead-sized pustules. There was, moreover, marked pigmentation in patches here and there; also malaise, with a disposition to be cold and hot alternately, hardly amounting to a regular chill. Finally,

there were heat and burning and some itching, but recent scratch-marks were not conspicuously present. In brief, the case possessed, so far as the skin was concerned, the chief characteristics of Hebra's impetigo herpetiformis, and this diagnosis was accordingly made. The disease persisted, the eruption repeating itself in a succession of crops with the same kind of lesions, and within six months disappeared, to be replaced, however, by an altogether different dermatological picture,—one with which I was quite familiar, namely, a polymorphous, mixed vesicular and bullous, inflammatory, herpetiform eruption, accompanied with severe burning and itching, or, briefly, the typical form of dermatitis herpetiformis. Subsequently, the previous impetiginous, or strictly pustular form, recurred, manifesting itself precisely as before; and during the next year the eruption again became vesicular and bullous.

There was now, after several years of observation, but one conclusion to draw—namely, that these diverse cutaneous manifestations all belonged to one pathological state, were simply varieties, or forms, of one process. Other similar cases later came under notice which strengthened this view, and I accordingly expressed myself that Hebra's impetigo herpetiformis (as I understood that disease from Hebra's description and portraits) might be regarded as a pustular manifestation of an extensive multiform (erythematous, vesicular, bullous, and pustular) herpetiform disease of the skin. This view, moreover, seemed to be supported by a case of "impetigo herpetiformis and pemphigus," reported by Heitzmann, of New York, which, while it presented the characteristic cutaneous features of Hebra's disease for a period of several months, abruptly changed from a pustular to a bullous affection, the blebs being in all respects like those of pemphigus. From this case Heitzmann drew the conclusion that both diseases arose from identical causes, and should be considered as being kindred to each other. It may be added that in this case the disease did not occur in connection with pregnancy, and that no cause could be assigned for its presence, the patient having been an apparently healthy woman, fifty-two years of age. The disease, nevertheless, ran a fatal course in about eight months from the beginning, œdema of the meninges setting in toward the end. There can scarcely be any question here concerning the diagnosis of impetigo herpetiformis, for Dr. Heitzmann had not only seen three of Hebra's cases in Vienna, but had, moreover, painted the portraits which portray this disease in Hebra's atlas.

The subject remained *in statu quo* until my several communications appeared, and, later, Kaposi's valuable contribution on impetigo herpetiformis, in 1887, in which the relations of that disease to some other affections (including dermatitis herpetiformis) are discussed. From this latter article a much more satisfactory idea of this disease is obtained than from any previous publication. The subject is presented in a different,

if not a new, light, and is fortified by reference to additional and more recent observations, and we are enabled to note what the author would have us regard as impetigo herpetiformis. If this definition, then, is to be accepted, and to be restricted so as to include only such cases as the author refers to, I admit that it becomes questionable whether the disease should be regarded as a variety of dermatitis herpetiformis. If the definition is to be rigidly confined to such cases (including their nature) as Kaposi quotes, the disposition of the matter would be simple, but other observers of this disease (or what they assume to be the same affection) do not entirely agree with the Vienna dermatologist. According to Kaposi, *the disease is invariably characterized by superficial miliary pustules, which begin as such and remain unchanged throughout their entire course, always arranged in groups and clusters, new lesions appearing on the border of older and crusted confluent pustules, in one or more series, on inflamed bases, while recovery takes place in the centre; furthermore, the disease occurs only in pregnant or puerperal women, and is accompanied with chills and marked fever, and is almost invariably fatal.* This definition is clear and simple enough, but does it include all forms of the disease? Is it sufficiently comprehensive? The question might pertinently be raised: Is it wise to make the definition so circumscribed; is the disease not liable to vary from this type; does it invariably show these very precise features; are, for example, the pustules always miliary, and from beginning to end; may they not vary in size, and, more especially, be considerably larger? Surely one portrait of this disease in Hebra's atlas (case of 1871, referred to before) fails to portray a miliary eruption; on the contrary, not only are many of the pustules large, but there is, moreover, considerable variation in size; nor is their arrangement and mode of extension or spreading apparently like that depicted in the other cases, namely, peripherally, as in herpes circinatus. I may remark further on this point that I find it difficult to reconcile this portrait with Kaposi's description of the eruption, and, finally, that it was mainly upon this illustration that I ventured to base the opinion of the identity of one of my cases (that of Annie McC., *Journ. of Cut. and Ven. Dis.*, vol. ii. No. 8) with the disease depicted. If Kaposi's views be adopted, Heitzmann's case, already referred to, cannot be regarded as impetigo herpetiformis, although, as previously remarked, from the fact that Heitzmann had the opportunity of seeing several of Hebra's original cases, it would seem that he must be entirely familiar with the subject. Nor can Zeisler's case (*Monatshefte für prak. Dermat.*, 1887, No. 21) of so-called "impetigo herpetiformis," which he, Dr. Hyde, and others believed to be an example of the Hebra and Kaposi disease, be regarded as such.

It may be questioned further: Does impetigo herpetiformis in all instances exhibit the same grave general symptoms and course, termi-

nating in almost every case fatally? Such symptoms and termination assuredly might be anticipated if it were generally admitted that the cause was uniformly septicæmia,—that the disease was always of septicæmic origin. But may not various causes give rise to the same cutaneous manifestations, not only here, but elsewhere, as in the case of certain other affections of the skin, as, for example, eczema? There was a time, not long ago, when Kaposi held that the disease occurred exclusively in women, but lately he has himself given the notes of a case observed in a man. From this criticism I wish merely to intimate or suggest that our definitions should not be drawn too closely. Most observers will agree that as our experience enlarges in dermatology we find in all directions the need of more breadth or latitude. Expansion in almost all instances, we note, comes sooner or later.

I have thus endeavored to present a concise historical sketch of impetigo herpetiformis, and also, more particularly, to state my reasons for having, in my earlier papers, regarded it as one of the manifestations of a peculiar, polymorphous, extensive process designated dermatitis herpetiformis. Whether I was right or in error in advancing this view is a question depending largely, in my opinion, upon the definition that shall be accorded to impetigo herpetiformis; and here I may remark that it is far from my thoughts to undervalue the observations of the distinguished Vienna dermatologist, whose extended and unique experience with impetigo herpetiformis entitles his communication to due consideration. My desire has been from the beginning simply to arrive at the true position which that disease occupies, and more especially to define its relationship to other allied affections. I may say, in passing, that had Kaposi's article been published at the date of my several communications, I should probably have, in some degree, qualified the conclusions concerning the identity of the affections.

In bringing these remarks to an end, I would say that I have always held to the opinion that all discussions tending to create perplexity should be avoided. On this point I feel strongly in the present case, concerning the relationship of the two forms of eruption which are the subject of this paper. The matter can only be settled by fully recorded observations at the hands of competent reporters, and it is highly important for future studies and deductions that the cases be ranged under such titles as will convey the clearest idea of the clinical picture. Considering, therefore, the existing difference of views, and in order that no possible barrier may impede progress, it will perhaps be to the advancement of the subject to separate, for the present at least, the diseases; and that, in the future, observations be reported under one caption or the other, as may seem most in harmony with the clinical facts of the case.

A CASE OF GLIOMA OF THE RIGHT CRUS CEREBRI.

By William Pepper, M.D.,
AND
Frederick A. Packard, M.D.,
of Philadelphia.

The following case was seen in connection with Dr. F. A. Rankin, of Newport, R. I., and presents several points of decided interest which make it worthy of a place in the records of cerebral tumors. The existence of a marked distal irritative condition, suggesting a reflex origin of the symptoms presented, embarrassed what might, in its absence, have been a matter of approximately certain diagnosis.

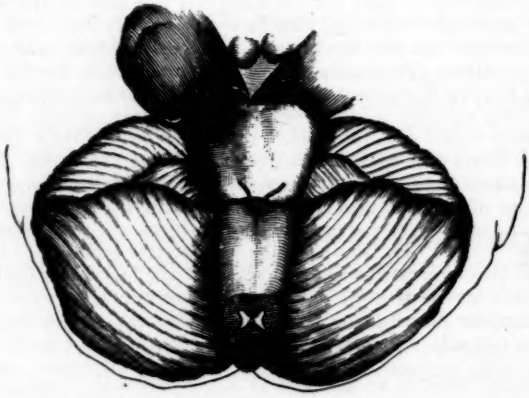
Hamilton R., white, aged nearly four years. The mother, thirteen years older than the father, is in good health. The father was married at the age of eighteen, and is a confirmed asthmatic. The first child born to these parents died after an illness of a few hours from what was said to be pneumonia. The patient was always a vigorous-looking child, but was thought by some never to have appeared "quite natural" (probably only an idea).

Without any recognizable predisposing or exciting cause, on May 15, 1889, awkwardness in using his left hand and foot was for the first time noticed, it being also remarked that he eat less neatly than usual. From this condition the left side steadily and rapidly became the seat of nearly complete paralysis. The hemiplegia was not complete, as the left leg and foot could be moved, although only to a very slight extent. The left upper extremity was completely paralyzed, the elbow spasmodically flexed, the fingers firmly closed over the thumb, the latter being firmly drawn into the palm. There were no contractures of the lower extremity. Pain was caused by an effort to overcome the flexion of the elbow and fingers. The contractures of the left arm were said to become less firm during sleep. The left side of the face was completely paralyzed, the tongue being protruded to the left. Dr. Rankin, who was in attendance upon the case, had at one time observed occasional ptosis of the left upper eyelid, with strabismus. At the time of examination, however, both eyes could be easily opened or closed at will, there was no squint and the state of the pupils was normal; vision was apparently unimpaired as roughly tested by the ability to count fingers. There was no diplopia; under the circumstances existing at the time of examination no ophthalmoscopic examination of the fundus or accurate estimation of the fields of vision could be made. Hearing was apparently unimpaired. There was no complaint or evidence of headache or of pain in any other part. Accurate investigation into the condition of sensibility to touch, temperature, or pain was impossible, but there was no gross change noticeable in any of these particulars. There was no marked loss of flesh, and when seen two days before his death the child was apparently vigorous and well nourished.

The patient slept well. During sleep the action of automatic swallowing was evidently impaired. He had frequent choking spells, but

although there was constant dribbling of saliva from the mouth there was no regurgitation through the nostrils. After the choking spells he had labored and irregular breathing. He took a good deal of liquid food, but the appetite was impaired. The bowels were regular. The frequency of micturition gradually became increasingly diminished, until two weeks before death he urinated but once in twenty-four hours, even then voiding but a small quantity.

His condition was rapidly growing worse, with decreasing willingness and ability to take nourishment; more frequent choking spells from accumulation of mucus and saliva; and progressive loss of power, so that he seemed very helpless, although the actual palsy was limited to the left side. A high degree of phimosis existed, and, although there was strong reason to diagnose serious cerebral lesion, it was deemed better to have circumcision performed in the hope that the hemiplegia might, in part at least, be of reflex origin from that source. The operation was accordingly performed by Dr. Rankin, on the following day, under the influence of ether, of which but a very small quantity was employed. The etherization was accompanied by no disagreeable or unusual symptoms. The prepuce was found closely united to the glans by adhesions, which were separated in the usual manner. He bore the operation well and recovered from the effects of the anæsthetic easily and naturally. During the remainder of the day of operation he seemed as well as he had been for some time, took food, asked for his toys, and made no complaint. During the night following the operation he passed urine.



About fourteen hours after the operation the child became unconscious, the left pupil tightly contracted, the right enormously dilated. The spasmodic condition of the left arm disappeared and was replaced by flaccidity of the whole left side; very little movement was, of course, made with the right side. There was some transient contraction of the muscles of the jaw. Respiration was very shallow and irregular, later becoming tidal in character. The rectal temperature rose to 103° F. Several convulsions accompanied by opisthotonos preceded death, the latter occurring twenty-four hours after operation. On post-mortem examination there

was found a hazelnut-sized tumor projecting from the outer side and under surface of the right crus cerebri, its bulk lying close to the point of entrance of the crus into the body of the pons Varolii. Microscopic examination of sections of the growth, by Dr. Allen J. Smith, showed it to be a glioma.

The case presents numerous points of interest, particularly from the fact that the growth was confined to a portion only of the tract by which all motor and sensory fibres travel between the cerebral cortex and the nerve trunks.

The diagnosis of the cause of hemiplegia lay between cerebral injury, thrombosis, embolism or tumor, and reflex irritation from the glans penis. Cerebral injury was excluded by the history. The time of progressive increase of symptoms was too long for thrombosis and not sudden enough for embolism to be looked upon as the causative factor. Moreover, the symptoms continuously progressed, as would not have been the case were the hemiplegia of an embolic origin. The diagnosis then lay between hemiplegia produced by cerebral tumor and that due to reflex causes. Neither of these factors could be positively excluded, yet there was evidence sufficiently strong to warrant the possibility of either condition existing. The history of gradual onset and steadily progressive course of the paralytic symptoms pointed toward the existence of brain tumors, but would not exclude the, at least, partial reflex element caused by the existing source of irritation. The oculo-motor symptoms resembled in their fugaceousness those due to reflex irritation rather than brain tumor. This instability of some of the symptoms would, on the other hand, not exclude brain tumor, as temporary intensification of existing or appearance of additonal symptoms is by no means uncommon in those cerebral tumors which are prone to vascular distention or hemorrhage. Had ophthalmoscopic examination of the eye-grounds been available, more positive evidence might have been obtained.

Taking the view of tumor as probable, we see that no localizing symptoms were presented other than those which indicated that the lesion was situated upon the right side of the brain, either as an extensive tumor in the Rolandic region, a central growth involving the internal capsule or its surrounding nuclei, or of the right crus so situated as to leave undisturbed the upper or sensory layer.

Viewed by the light shed upon the case by the autopsy the symptoms are seen to correspond remarkably closely to those necessarily produced by a lesion such as was found, except for the fact that it is difficult to explain the escape of the fourth cranial nerve, whose trunk winds around the crus at very nearly the position occupied by the tumor. The facial nerve trunk was not affected, the existing palsy being upon the side opposite to the lesion, and due, therefore, to implication of the facial fibres between their origin in the cerebral cortex and their decussation

in the pons Varolii. Had the entire width of the crus been involved, or had the tumor been of greater size, there would doubtless have been presented permanent symptoms referable to the oculo-motor apparatus from pressure upon one or both of the third nerve trunks at the point of emergence from the angle formed by the approach of the crura to enter the pons. The transient occurrence of these symptoms indicates that there must have occurred some temporary (probably vascular) enlargement of the growth. The explanation of the absence of *total* paralysis in the lower extremity may indicate that the fibres to that part run nearer to the median border of the crus than do those to the arm. Hemianopsia was presumably not present, because of the tumor being situated too far behind the point of superficial origin of the optic tract to make pressure directly upon it, and because the tumor was too small to produce any very marked "distant effects." The difficulty experienced in swallowing could conceivably be due to indirect involvement of the trunk of the fifth cranial nerve, the glosso-pharyngeal and pneumogastric nerves being so far away as to render their involvement improbable. The dysphagia would then have a sensory and not a motor origin.

Had it been possible to exclude absolutely the reflex origin of the hemiplegia, it would have been difficult, if not impossible, to exclude a lesion of the internal capsule or corpus striatum, in the absence of crossed third or fourth nerve palsy or other symptoms implying involvement of the nerve trunks of the base of the brain.

The points to be extracted from the present case may be of some value in aiding the elucidation of the subjects of cerebral localization and of focal diagnosis of brain tumors.

To sum up the salient features:

From a tumor of the right crus cerebri close to its entrance into the pons Varolii, involving chiefly its outer border and inferior surface, the symptoms produced were left sided facial and corporeal hemiplegia with most marked involvement of the upper extremity; protrusion of the tongue to the left; marked contractures in the upper, with none in the lower, extremity; unaltered sensibility; transient involvement of the extrinsic ocular muscles; absence of hemianopsia and of paralysis of the masticatory muscles.

Absolute certainty in diagnosis as to the character of the tumor would have been impossible. The family history and the good state of general health would have almost excluded the suspicion of its being tubercular in character, as would also, to some extent, the clear evidence of the lesion being solitary. Carcinoma would have been excluded by the patient's age, while a specific origin was negatived by the health of the parents and the child's appearance of good general health. By exclusion, then, glioma would be the probable diagnosis.

No operative interference for the removal of the growth could, of course, have been of benefit, nor would the widespread symptoms point to a cortical lesion, unless to one of such extensive area as to have rendered its removal extremely hazardous, if not impossible. Bearing in mind the known danger of the use of anæsthetics in cases of brain-tumor, yet appreciating the importance of correcting an existent peripheral source of irritation, ether was given, but in very small quantity. The good recovery from the effects of both the anæsthesia and operation, and the interval between these and the fatal ending, would indicate that the operative procedures could not have caused death except, possibly indirectly, by increasing in some way the vascularity and, therefore, size of the growth.

INJURY OF CERVICAL SPINE, WITH LUXATION; REDUCTION; CURE.

By Alexander W. Acheson, M.D.,
of Denison, Texas.

F. J. W., aged fifty-five years, a railroad conductor in the employ of the Missouri, Kansas & Texas Railway, on the 10th of July, 1889, at the town of St. Jo, Texas, was assisting in the side-tracking of some flat cars, the brakeman being at the switch-target, while he stood on the siding awaiting the approach of the cars. As they came toward him he grasped the brake to mount a car, when the staff broke, and he was precipitated, back downward, in front of the train, his head falling between two ties, while the brake-beam caught his body, pushing it toward his head and turned him a complete somersault, leaving him lying on his face. He was found beneath the second car, three trucks having passed over him. When dragged from beneath the train his upper extremities were paralyzed and he insisted that they were cut off, and he would not believe to the contrary until his gloves were removed and his hands held up for his inspection. This occurred at five P. M. Nothing was done for him that day.

On July 11th, at noon, nineteen hours after the accident, I received him at the depot at Denison, and had him transferred to his home, where an examination revealed a slight bruise on the right leg, another unimportant wound on the left shoulder, and a bruise the shape of the letter "J," beginning on the edge of the forehead over the right eye, running backward and around the upper edge of the occiput, and terminating about where it joins the left parietal bone. This bruise was about an inch wide and plainly visible, as the man was bald.

Of the bruises and wounds he complained but little, and said that his suffering was chiefly in his neck, particularly in the back of the neck at the base of the skull, and that there was a sense of constriction in the throat. The posterior aspect of the neck presented no abnormal condition on superficial examination, except a slight swelling about an inch wide at the base of the occiput extending from one mastoid process to the other. The anterior aspect of the neck, however, showed a condition which I do not recollect having ever seen described. It somewhat resembled a combined case of mumps and goitre. The sterno-cleido-mastoid muscles bulged out at the angles of the jaws, and were perfectly flaccid, but there was no swelling present. The pomum Adami was almost on a line with the chin, and the whole front of the neck was unduly prominent.

When this examination was made sensation in the upper extremities had been partially restored; that is, complete paralysis of sensation did not exist. He only complained of a numbness and spoke of his inability to feel a fly crawling on either hand. The ability to move the arms and hands had also returned, but there was no power to turn the head by the muscles of the neck. When asked to turn over, he replied: "Wait until I get my head," and taking it in his hands turned it with his body.

Realizing that this man's neck was dislocated, I directed two assistants to take his feet and make counter-extension, while I took his head, with the fingers of one hand clutched under the eyebrows and those of the other under the occiput; violent extension was resorted to, with oscillation forward and backward, and immediately the head assumed its proper position on top of the spinal column, all the abnormal appearances at once disappeared, while the patient, looking up, remarked with a laugh that the sense of constriction in the throat had left. The head, neck, and shoulders were then encased in a plaster-of-Paris mould, where they remained two weeks. At the expiration of two days the remaining numbness of the arms and hands had disappeared, except a peculiar sensation in the right fingers, which yet remains, and which he describes as a feeling which would be produced by washing in water containing cornmeal. On the day succeeding the reduction the temperature rose to 103°, but gradually subsided under treatment.

In the manipulation necessary to accomplish reduction no crepitus was noted, nor was any attempt made to discover any, on account of the danger which might result to the spinal cord from spicula, should any be present.

On the fourth day after the accident there occurred a hemorrhage from the mouth, which was slight in extent. This recurred on the fifth day, and again on the sixth, when it was quite severe. It proceeded from a wound in the floor of the mouth which had been made by a tooth in the upper jaw. Only one tooth was present in the upper jaw—the right first molar—and it was worn down to a sharp edge on one side and

broken off on the other. At the time of the accident so much pressure was brought to bear on the patient's head, with the jaw-bone against the breast, that the lower jaw had been forced past the upper, until the tooth penetrated the tissues beneath the tongue.

At the end of two weeks the plaster apparatus was exchanged for one of sole leather, which was neater, lighter, and so constructed as to permit the patient to sleep upon the side.

At the end of a month he was able to sit up and move about the room, even going into the yard, but in doing so used artificial support to the head. In rising from the recumbent position he has to take his head in his hands. While sitting up he leans his head against a board attached to the back of the chair, and while walking leans his head forward on his fist which grasps his beard. To assist his movements an apparatus was constructed of the nature of a steel backbone with a crutch head on the upper end. This was fastened around the waist by a belt, and straps, similar to those soldiers use to carry their knapsacks, bound it to the upper part of the chest and steadied the head upon the spinal column. Continuous sitting in the erect position, however, developed a tenderness which degenerated into a pain, so that at the end of one or two hours he was compelled to lie down again. While recumbent there was no pain except upon pressure, and that limited to the spinous process of the third cervical vertebra. About the first of September, or fifty days after the accident, he began to suffer excruciating pain at the approach of a weather change. This pain, though most severe in the neck, was not limited to it, but in severe storms extended to other joints.

About this time also the tissues on the back of the neck began to assume a mottled appearance. The circulation became very sluggish, and most noticeably so about an inch to the right of the median line, on a level with the third cervical vertebra. He spoke of a gritting or clicking with every attempt to turn the head, and an exquisite pain if the head dropped forward beyond a certain point. During the next ten days the circulation improved somewhat, yet it is not certain that some tissue necrosis may not yet be encountered.

At the present writing, 107 days after the accident, his condition is stationary. The accompanying sketch is taken from a photographic side view of the patient: The bulge on the back of the neck is plainly apparent, showing that reduction did not reduce all the injured parts to their normal situation. His neck presents the appearance of a bent knitting-needle which has been straightened, that is, it still has a kink in it.

This condition may be due either to a slight displacement of one of the cervical vertebræ which was not reduced when extension was resorted to, or may have been caused by the crushing of the body of one of the

vertebræ, or the fracture of one of the vertebræ immediately posterior to its body. Considering all the points presented in this interesting case, my belief is that there were present both dislocation and fracture.

Another point of interest is the alteration of voice. His voice is strong, but is such as is produced by what is popularly known as "talking down in his throat." Examination of the fauces reveals nothing which will explain this, nor was there at any time any complaint of injury to the larnyx. When we consider how little of the tonsils have to be removed in order to alter the voice, it may be explained by some alteration in the size or shape of the pharyngeal cavity too insignificant to be detected.

The only remaining evidence of the paralysis is limited to the fingers of the right hand, which he says feel as though gravel were covering any article he touches.

The steel backbone referred to failing to give him relief from pain, a jury-mast was constructed, which he is now wearing with some satisfaction.

The mottled appearance spoken of has entirely disappeared. The suffering at the approach of weather changes yet continues.

REVIEWS.

LEHRBUCH DER ALLGEMEINEN UND SPECIELLEN PATHOLOGISCHEN ANATOMIE FÜR AERZTE UND STUDIRENDE. Von DR. ERNST ZIEGLER, Professor der pathologischen Anatomie und der allgemeinen Pathologie an der Universität Freiburg in Baden. Sechste verbesserte und theilweise neu bearbeitete Auflage. Erster Band. ALLGEMEINE PATHOLOGISCHE ANATOMIE UND PATHOGENESE.

TEXT-BOOK OF GENERAL AND SPECIAL PATHOLOGICAL ANATOMY FOR PHYSICIANS AND STUDENTS. By DR. ERNST ZIEGLER, Professor of Pathological Anatomy and General Pathology at the University of Freiburg in Baden. Sixth Edition, corrected and in part rewritten. Vol. I. GENERAL PATHOLOGICAL ANATOMY AND PATHOGENESIS. 8vo., pp. xiv., 567. With 343 illustrations and a chromo-lithographic plate. Jena: Gustav Fischer, 1889.

THE appearance after so short an interval as thirty months of the first volume of a new edition of Ziegler's well-known text-book of pathology betokens continuance of a popularity almost unprecedented among medical works, necessitating the issue of six editions in the surprisingly short space of eight years. No one familiar with the book can fail to discern the source of this popularity, for in the clear typography, made easy for reference by judicious interspersion of black-faced type, in the use of fine print for the discussion of hypotheses, in the wealth of illustration, and in the ample bibliography, we have features which appeal alike to the student and the specialist.

In the volume before us, comprising that portion of the work devoted to general pathology and pathogenesis, many additions have been necessary to keep the book abreast of the rapid advances made during the past two years. To accommodate these without unduly increasing the size of the volume, condensation of some of the material has been attempted and a few unimportant paragraphs have been omitted. Even with these curtailments the book has grown by seventy pages, and the illustrations have been increased from 307 to 343.

As is but natural, the most radical changes are to be found in the chapter on the bacteria and their relation to disease, in which the most recent work receives recognition, though not always the support of the author. Perhaps nothing in general pathology excites greater interest at the present moment than the problems connected with the explanation of the phenomena of recovery from infectious disease, protective inoculation, and immunity. In the discussion of this subject objection is raised to the theory of Pasteur and Klebs that recovery and immunity are due to the exhaustion or absence of certain substances in the body essential to the growth of the pathogenic bacteria, and Ziegler lends the

weight of his opinion to those theories based upon the hypothesis of the production of chemical substances which prevent the development of the germs. This opinion is supported by reference to the work of Salmon, Pasteur, Roux, Chamberland, and others, who obtained immunity from certain infectious diseases experimentally by inoculation of chemical substances gained by distillation from cultures of the infectious bacteria, and by the discovery by Emmerich, di Mattei, and Rogowitsch, that pathogenic bacteria introduced into the flesh of animals protected by previous inoculation quickly die and are incapable of development. These protective chemical substances are believed by Ziegler to result from changes in the tissues, and not to be produced by the micro-organisms themselves. In this connection, also, the recent discovery by Nuttall, Flügge, and Buchner of the germicidal properties of blood-serum is referred to. In company with the majority of pathologists, Ziegler, while admitting the possibility of its occasional occurrence, finds much in the way of the unqualified acceptance of the views of Metschnikoff regarding phagocytosis, and practically eliminates it from any appreciable agency in the destruction of pathogenic bacteria in the body.

Besides the discussion of this subject, which is in great part new in the present edition, paragraphs have been inserted treating of the effects of carbon dioxide and light on bacteria, and of the transmission of disease from mother to fœtus. At the end of the volume, what was before but a cursory notice in fine print of the claims of the plasmodium malariæ, has, in the present edition, expanded into a very sizable paragraph in the body of the text.

Additions are also noticeable in the chapter on monstrosities, so full in the previous edition, making it now one of the most complete catalogues of these strange anomalies with which we are acquainted.

As an introduction to the chapter on retrograde metamorphosis, a paragraph relating to death of the organism as a whole has been inserted, in which the signs of death, their causes, time of onset, etc., are discussed, as are also some of the points of differentiation of death from trance and allied states.

The sections treating of inflammation and suppuration, thrombosis, œdema, and pigmentation have all undergone slight modification, and a paragraph has been added describing the pathology of that most curious condition—myxœdema.

To those who use the work frequently as a key to the literature, the rearrangement and extension of the bibliography will be among the most welcome of the improvements in the present edition. J. S. E.

CYCLOPÆDIA OF THE DISEASES OF CHILDREN, MEDICAL AND SURGICAL. THE ARTICLES WRITTEN ESPECIALLY FOR THE WORK BY AMERICAN, BRITISH, AND CANADIAN AUTHORS. Edited by JOHN M. KEATING, M.D. Vol. ii. Illustrated. 8vo., pp. xii., 1066. Philadelphia: J. B. Lippincott Company, 1889.

THE second volume begins with the diseases of the skin, which are discussed by a number of authors. The article on "Eczema," by Van Harlingen, as treating of the most common form of skin trouble, de-

serves especial mention. The author takes the middle road, as far as local and general origin of the disease is concerned; he says, "of course, no stress is to be laid upon a hereditary or acquired taint, as in syphilis," and, in accordance with these views, his treatment is both local and general. It sounds strange to hear a dermatologist say that "eczema is liable to be confounded with pediculosis capillitii," evidently permitting us to infer that eczema, as an entity, is entirely different from the manifestations produced by pediculi capitis. A fine practical point is made by the publishing of the formula and directions for making Hebra's diachylon ointment, the essential principle of which consists in the hydration of the litharge powder. Whoever has had occasion to see this ointment will agree with the author that most apothecaries dispense a "tough and stringy mass" or a "slimy fluid."

Dermatology is by no means what Hebra tried to impress his hearers that it ought to be: "a science like geology or botany." Nowhere does this become more apparent than in a series of articles written by a number of authors. For many reasons it is a pity that the simple nomenclature which had been adopted is again being disturbed, since it is always the principal source of clearness. Naturally enough dermatology has to conform to the discoveries made in pathology, but it does seem to the impartial observer that, since the death of Hebra, who seemed, *facile princeps*, The Pope of dermatology, many innovations have been introduced which will eventually do as much harm as good. In one sense, nearly all the dermatological articles are disappointing—in that they do not refer especially to the manifestations as they present themselves in children. While a comparison between the adult and infantile forms is nearly always made, it would, in our judgment, have been better to have laid more stress upon the peculiar eruptions in children and less on those in the adult.

In the article on "Scrofulosis" by Henry Ashby, we find a careful *résumé* of the most important things that have been done in connection with the subject. He does not believe in the identity of scrofulosis and tuberculosis; he does not agree with Unna as to impetigo, and does not mention the remarkable case of Demme as to ozæna, and, although he admits the possibility of a tubercular impetigo, he asks for an explanation "how enlarged glands following cutting teeth, or due to the irritation of a carious tooth, become tubercular." The whole article, however, is full of progress, and the distinct tendency is to reduce the term scrofula to a clinical one, not to consider the disease an entity or characterized by anything specific. Cod-liver oil and the iodine preparations are the principal remedies recommended, and much stress is laid upon the local treatment of the glandular lesions.

The article on "Tuberculosis," by A. Jacobi, is full and at the same time concise, like all the articles by this distinguished author. Then follow "Syphilis," by Abner Post, and "Rachitis," by Thomas Barlow and Judson S. Bury. Both of these articles are models in their way. Whatever Barlow would have to say in connection with rachitis would always command the greatest respect, and we are especially glad that he has written the article on "Scurvy" in children. It is astonishing that Barlow has no personal knowledge of Kassowitz's treatment, especially as nearly all who have written upon the subject regard this method as almost a specific in laryngo-spasms.

In the article on "Cretinism," Bury gives a most excellent account of

the condition and its relation to other diseases, and comes to the conclusion that, probably, "sporadic and endemic cretinism, myxœdema and the cachexia strumipriva are identical or closely allied diseases, depending upon diminished or lost function of the thyroid gland."

Next we come to a most remarkable paper on the "Urinary Diatheses," by Milner Fothergill, of which the editor says in a foot-note that "the manuscript was received a few days after the cable announced the death of its author. It was the last work of this distinguished writer." Oxaluria, phosphaturia and lithuria, the author claims, received more study a half-century ago, and he prophesies a revival "less than half a century hence." The first two are treated of in a very cursory way, so that it is but natural to infer that the remark was intended especially for the latter condition, which would correspond with the views that were held by the author and a great number of writers belonging to the present age.

To one who does not believe in the universal presence of gout as an etiological factor this article is of special interest, because of the man who wrote it and because of its application to children. It is difficult to arrive at a conclusion concerning its intrinsic value; the fascinating, virile style, the almost dogmatic statement of unsettled facts, and the conclusions, drawn with the incisiveness of a man who has confidence in what he is saying, make one waver in the position taken in regard to gout. After all, the production of so many diseases by gout is more a scientific creed than a scientific doctrine. In reading, as we do in this article, of the intimate connection of scrofula (struma), the neurotic temperament, reversion, biliousness and chronic Bright's disease and gout, not to mention a great many other things that are brought into direct or indirect relation, the most natural conclusion that will be arrived at will be that a great many symptomatic combinations have been thrown together as due to a common cause. But one step further will convince us that the term gout is simply a combination of symptoms, the cause for which has not, as yet, been established, at least not in such a way as to be free from criticism. It is one thing to accept an increase in uric acid in the urine as the only necessary qualification, but it is another matter to find, in looking back a step, that uric acid is increased as a result of something going on in the economy. In this direction Fothergill, in common with those believing with him, takes ground which is not sufficiently based upon physiological and pathological investigation. Clinical results are not sufficient to draw such wide-extending inferences as has been done; more especially is this the case when we find that they are not admitted by so many observers.

Part III. of the work is devoted to diseases of the respiratory tract, and begins with the diseases of the nose. Among these is a very practical paper on "Epistaxis," by E. Carroll Morgan, in which is found a historical development of the subject and a thorough consideration of nose-bleed as a symptom of various conditions and diseases. The articles by Delavan on "Foreign Bodies and Tumors" are such as would be expected from this conscientious observer and writer. Bosworth contributes "Congenital Syphilis, Croupous and Purulent Rhinitis." He is an adherent to the non-identity of croup and diphtheria, and he is frank in stating that he "believes" croup to be a disease due to a germ; that this germ produces changes in the blood, followed by hyperinosis, and that the membrane is a result of this hyperinosis. As he says: "A

diphtheritic exudation we regard as local evidence of the general disease which we term diphtheria, and so a croupous exudation is to be regarded as the local evidence of a general disease to which we have as yet given no definite name." But the indefinite quantity, the hyperinosis, is produced by a germ, just as the "general disease" in diphtheria.

In "Diseases and Injuries of the Pharynx," by Ingalls, we find the etiology of acute pharyngitis to be catching cold, the scrofulous or rheumatic diathesis, and that it is sometimes epidemic. Membranous sore-throat (croupous pharyngitis, herpetic sore-throat, aphthous sore-throat—all of which are synonymous, according to the author), we are told, is not dangerous except by extension, or by its occasionally "terminating in diphtheria, which may be serious." It may also be attended by paralysis, and "occasionally" attends syphilitic and tubercular sore-throat. If the specialist cannot distinguish between so many different forms of pharyngitis, what is to become of the poor "common practitioner?" The whole interesting subject of pharyngitis in the acute exanthemata is discussed in a little over a page. The discussion on the nature of scarlatinal sore-throat is not mentioned; the etiology of this condition is "the poison of scarlatina." Verily, the author must be a specialist! On the other hand, the description of the follicular forms is most excellent, and that of retro-pharyngeal abscess contains all that need be known.

"Diseases of the Tonsils" are described by Beverley Robinson. Of the acute forms there are: 1. Acute superficial or erythematous tonsillitis; 2. Acute follicular or lacunar tonsillitis; 3. Deep or parenchymatous tonsillitis. The distinguishing feature of the lacunar form, or follicular angina, is the absence of albuminuria. The only chronic form mentioned is "chronic enlargement of the tonsils." The tubercular and leptothricial forms of angina are not described; the croupous, diphtheritic, and syphilitic forms we are expected to find under a different heading. The author has written so well upon the subjects he has described, the chronic form especially, that, for the sake of completeness, it is a pity he has not taken up all the diseases that are found upon the tonsils.

"Spasmodic Laryngitis, Pseudo-membranous Laryngitis, and Intubation" are discussed by Northrup. The article upon intubation is of especial value, full of hints to the beginner and good points to those that have practised the operation. The article upon "Tracheotomy," by Wharton, is very complete, and following the article on intubation, as it does, a comparison between the two as to results and otherwise is left to the reader.

Minot has written the articles on "Atelectasis" and "Croupous Pneumonia." The latter disease is looked upon as an infectious non-contagious malady. Minot contributes a report of a local endemic in which the infection is claimed to have arisen from a defective "set basin." The duration of the disease varies, "seldom lasting longer than ten days, and often completed in five or six." The author takes the view that apex pneumonia is not more likely to be accompanied by cerebral symptoms than any other form. The treatment is expectant; in regard to aconite, we quote: "I have frequently prescribed it, but I have never been able to satisfy myself that it is of any use; and, as it is a very depressing medicine when given in a full dose, it is not a con-

venient one to handle." Of digitalis the following is said: "In my opinion its value has been overestimated."

The articles on "Bronchitis" and "Broncho-pneumonia," by F. Gordon Morrill, are carefully prepared, the latter especially showing a great amount of diligence, in that new statistical tables are introduced. The good, old-fashioned poultice "should not be countenanced," although no especially good reasons are given for this discountenancing. On the other hand, no especially good reasons can be given for not discountenancing it, except, possibly, that those who have most to do with catarrhal pneumonia find that the poultice-jacket is a valuable aid in treatment. Scientifically, we cannot see why a poultice should do good. Possibly, when we know more about the etiology of these diseases than is expressed in "catching cold," it will be seen why so careful an observer as West, and a great many others, insist, empirically, it is true, upon the poultice.

"Emphysema," "Hay Fever," and "Asthma" are briefly, but excellently, discussed in three articles by F. C. Shattuck. In reflex asthma the ubiquitous (etiologically) intestinal worm is "also set down as a cause." A most interesting point is made in regard to the relation of urticaria (and skin troubles) to asthma. In the article on "Phthisis," by Jacobi, his therapeutic resources must command the admiration of everyone. "Colds, in spite of the modern superciliousness of some who deny any pathological change unless the exclusive work of bacteria, will always hold their places in nosology." It may not be out of place to suggest that doubts were expressed upon this subject long before any "modern superciliousness" existed, and certainly before the discovery of the modern bacteria. A great deal of good would be done if an unbiassed, unprejudiced examination could be made of this whole subject of "catching cold." Assertions do not prove anything, even when coming from the highest authorities. The day has come when croupous pneumonia, the disease which *par excellence* was attributed to catching cold, is no longer referred to this mystic "reflex" act. Does it not seem possible that our logic may have been a little at fault, as well as our observation, in regard to other diseases?

"Pleurisy," by Whittier and Vickery, and "Empyema," by Cabot, are both very valuable articles; the latter especially so, on account of the directions for operating.

In Part IV. the first larger article is on "Congenital Affections of the Heart," by Osler, and we find here the same good, conscientious work that characterizes this well-known author.

In "Endocarditis," Cheadle has given us another valuable contribution. Here the connection between rheumatism, chorea, and endocarditis is as conclusively proven as can be done with statistical material. The views expressed regarding the significance of heart-murmurs are certainly very interesting in regard to their origin; and the section on prognosis is valuable, as coming from so well known a clinician. The section on treatment is advanced as to the grounds taken in regard to salicylate of soda. Of the remaining chapters especial notice should be taken of the one on "Valvular Disease," by Sansom, who is well known as the author of a small, but exceedingly interesting, work on *Valvular Diseases of the Heart*. Very few of the articles have such direct application to children as this one, so that its value is doubly enhanced by this treatment of the subject.

Part V. treats of the diseases of the mouth, the tongue and the jaws,

and begins with an article on the "Diseases and Care of the Teeth," by Darby. The time and order of eruption of the temporary set are rather interesting, as is usually the case when dentists write upon this subject. But the article is an excellent and practical one in every respect. Roswell Park follows with the "Congenital Defects and Deformities of the Face, Lips, Mouth, Tongue and Jaws," in a very short article. We hope to see this whole subject treated of monographically at some future time.

"Diseases of the Mouth," by Allchin, contains all that need be known upon the subject. It is a noticeable fact that the German authorities are not mentioned very often. Not that this can be looked upon as a fault, since every author has the right to draw his illustrations from whatever source he may think best. It seems, however, that Bohn could have been utilized with good results, and, at least, being a standard author, some of his views as to stomatitis aphthosa and stomatitis ulcerosa might have been referred to.

A special feature, and one of great importance, is to be found at the end of each volume—an excellent index. It is not necessary to dilate upon this valuable portion of the work; no one knows how to appreciate this better than those who have been condemned to look through a whole book in order to find one small point.

A *résumé* of all the articles will induce anyone to believe that he is dealing with a most noteworthy contribution to our knowledge. Even the weakest article contains something of interest and, in the way of a few histories, something new. Some articles, written by men of deservedly great reputation in their branches, are weakened, probably on account of the audience they suppose themselves to be talking to. Some articles are shortened, in order to avoid repetitions and to conform to the space limit that must, of necessity, be insisted upon in every large work when written by a great number of authors. If the succeeding volumes come up to the standard which is marked in the first two, the work will be the most valuable ever written on diseases of children. The names of those who will contribute are a sufficient guarantee that this will be the case. We would be derelict if thanks were not expressed to the publishers for the exceedingly liberal outfit the book has received in every direction. The print and paper are very good, the illustrations are far above the average, and very few mistakes have occurred in printing. F. F.

GOUT AND ITS RELATIONS TO DISEASES OF THE LIVER AND KIDNEYS. By ROBSON ROOSE, M.D., LL.D., F.C.S., Fellow of the Royal College of Physicians in Edinburgh, Sixth Edition. 8vo., pp. xii., 179. London: H. K. Lewis, 1889.

THE issuance of six editions of any book, and especially within so brief a time as four years, means that a definite place has been gained in professional estimation, and criticism must be governed accordingly. The author states in his preface, that this edition is not a mere reprint, but that he has, as before, added the results of his later experience and study, together with such observations of others as seemed pertinent. The subject is thoroughly treated, and from a practical standpoint. The

author still adheres to the views expressed, especially by Murchison, that imperfect functioning of the liver is the chief cause of overproduction of uric acid.

The theory of the nervous origin of the affection is discussed at length, but the conclusion is again reached that nervous disorder is the effect of the *materies peccans*. Kidney complications are regarded as almost exclusively secondary; and while their great frequency is recognized, temporary albuminuria, even if accompanied with tube casts, is not considered as evidence of organic disease of the kidney. Persistence or frequent recurrence of this condition is, however, recognized as of serious import. Treatment is judiciously made to centre on the hygienic management of the diathesis. Diet is to be carefully regulated quantitatively as well as qualitatively, and an exclusive regimen of any kind is wisely deprecated. A moderate amount of meat is allowed, and fats are to be used in place of carbohydrates as far as possible. Saccharin is recommended as a valuable substitute for sugar. Balneology is discussed at some length, with especial reference to British resorts; and in this connection the great value of water, *per se*, and especially hot water, as a drink for gouty subjects is fully recognized. The medicinal treatment advised does not call for especial comment. The book is furnished with a good index. S. S. C.

A Hand-book of Obstetrical Nursing, for Nurses, Students, and Mothers; comprising the Course of Instruction in Obstetrical Nursing given to the Pupils of the Training-school for Nurses connected with the Woman's Hospital of Philadelphia. By Anna M. Fullerton, M.D., Demonstrator of Obstetrics in the Woman's Medical College of Pennsylvania; Physician-in-charge and Obstetrician and Gynecologist to the Woman's Hospital of Philadelphia, and Superintendent of its Nurse Training-school. 12mo., pp. 214. Philadelphia: P. Blakiston, Son and Company, 1890.

With the introduction of antiseptic obstetrics, under which so much has been acccomplished in reducing the death-rate of lying-in hospitals, it became absolutely essential that women of a better grade should be encouraged to become nurses; that the candidates for instruction should be young and healthy, and that they should have a special training by lectures and at the bedside, to fit them for carrying out properly and understandingly the directions of the obstetrician in charge. What is to be learned in a maternity training-school is the way to nurse as a profession, so that the woman may make herself acceptable to both physician and patient in a private house after she shall have graduated. Under the old regime the "monthly nurse" was generally a middle-aged woman, frequently a widow, often too fat to be active, and had picked up an imperfect knowledge from case to case. Such women may still answer in the homes of poverty, where one neighbor often nurses another; but among refined and educated mothers there is a growing desire for a refined and educated nurse—one that not only understands her business, but can be in some degree a pleasant companion in the sick-room. To supplement the instruction of the training-school as a text-book, and to

keep the pupil in remembrance of what she has been taught, is the object of Dr. Fullerton's hand-book. It does not aim to make a physician of the nurse, although it does of necessity teach her a certain measure of emergency obstetrics, so that she may be able to render valuable aid in event of a fœtal extrusion when the attending accoucheur is absent. The scope of the volume will be best shown by its chapter headings, viz.: Signs of pregnancy; management of accidents of labor; preparations for the labor; signs of its approach and the process of labor; duties of the nurse during labor; and accidents and emergencies of labor; care of the newborn infant; management of the lying-in; characteristics of infancy in health and disease; and the ailments of early infancy. The book is well printed, with marginal notations, fairly illustrated, and is calculated to be of useful service both to the nurse and the medical attendant. We have read it with interest, and can recommend it as a valuable manual. R. P. H.

ON BRONCHIAL ASTHMA: ITS PATHOLOGY AND TREATMENT. By J. B. BERKART, M.D., late Physician to the City of London Hospital for Diseases of the Chest. Second Edition. 8vo., pp. 220. London: J. & A. Churchill, 1889.

THIS is an important addition to the clinical literature of asthma, but is a disappointment to those who regard the pathology of this disease settled in favor of the spasmodic or neurotic theory. The author concludes from a wide experience, both of a hospital and private nature, that the spasm of this disease is a secondary product, and is dependent on a croupous or fibrinous exudation in the bronchial tubes. The peculiar sputum which emanates from this deposit is looked upon by him as a point of great diagnostic value.

A rational pathology requires us to hold ideas, however, which seek to unify all the known phenomena of a disease. Does the exudation theory subserve this end? Does it account for the sudden beginning and subsidence of asthma? Does it account for the total absence of expectoration even in many severe seizures? Does it explain why nervous diseases are frequently transformed into asthma, and why asthma sometimes disappears in various forms of nervous disease? Does it help us to understand why an attack of asthma is almost universally and instantaneously amenable to agents like stramonium, nitrites, etc., which act on the disease exclusively through the nervous system?

Evidently it does not, and therefore must be regarded as a weak-working hypothesis, in so far as its utility to therapeutics is concerned. This view is also confirmed by the fact that the book suggests no new line of treatment which is specially calculated to meet this peculiar pathological condition. The old and well-tried remedies—such as rest, climate, diet, inhalations, expectorants, stimulants, electricity, pneumatic treatment, etc.—are strongly recommended; and notwithstanding the defective connection between the theory and the practice of the author, it must be admitted that the systematic course of therapeutics which is advocated is excellent, and will be of great value to those who are interested in the study of asthma. T. J. M.

A GUIDE TO THE DISEASES OF CHILDREN. By JAMES FREDERIC GOODHART, M.D., F.R.C.P. Rearranged, revised, and edited by LOUIS STARR, M.D. Second American, from the Third English Edition. 8vo., pp. 772. Philadelphia: P. Blakiston, Son & Co., 1889.

THE second American edition of this most excellent guide appears thoroughly revised by author and editor, and enriched with a larger part than formerly of the suggestions and views of the latter. The brackets which enclosed Dr. Starr's contributions in the former editions have been removed; he has rearranged the book, and added clinical charts which illustrate typical cases. The result is a decided gain in attractiveness and value, and the book is the best "guide," as Dr. Goodhart modestly styles it, to the diseases of which it treats available in English medical literature. The author's work is especially valuable for the clearly drawn pictures it affords of disease, which are so impressive to the student.

Adequate treatment is given to that most important of pædiatric topics, the feeding of the child. Sterilized milk has ample justice done it; artificial digestive agents are of recognized value, and children's foods are given their proper sphere, as adjuvants of milk-feeding, not as substitutes for milk.

In the treatment of intestinal disorders the modern theory of antiseptic medication receives full endorsement; our experience has led us to include salol among those drugs mentioned as being, next to calomel, the most convenient and efficient of all. We have also found washing out the stomach early in intestinal inflammation the most efficient way of checking persistent vomiting, and in hospitals diapers should be thoroughly disinfected during the prevalence of diarrhœas.

The modern methods of treating whooping-cough are described and approved, antipyrin having been found of decided value.

Two honored superstitions of children's practice receive scientific and adverse criticism: one that teething is the cause of all ills at a certain period; the other that symptoms not otherwise explicable indicate the presence of intestinal parasites. It is the child's general nervous instability depending upon its period of development which favors disease; and only the passage of worms or their ova justifies a diagnosis of their presence.

The book abounds in useful formulæ, and its present improved edition will be welcomed by student and practitioner alike as furnishing a reliable basis for pædiatric knowledge, from which original work or more extended reading may proceed. E. P. D.

PROGRESS

OF

MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF

FRANCIS H. WILLIAMS, M.D.,
ASSISTANT PROFESSOR OF THERAPEUTICS IN HARVARD UNIVERSITY.

The Report of the Hyderabad Chloroform Commission.

The second Hyderabad Chloroform Commission's report has just appeared in *The Lancet* of January 18th, and on account of the importance of the subject cannot fail to receive marked attention. The experiments, which were performed under the supervision of Dr. Lauder Brunton, were of two kinds, those of one group being made without recording apparatus, and being intended to ascertain what influence is exerted by various conditions upon the relation between the stoppage of heart and of respiration, and the limits within which artificial respiration and other means of resuscitation are useful. The second group consisted of experiments with recording apparatus, and were made for the purpose of ascertaining the effect of various conditions upon the heart and blood pressure. In the first group chloroform was given in all sorts of ways—alone or with morphine, atropine, and strychnine—to animals, healthy and diseased, fasting or replete. The result was invariable: in every case the respiration stopped before the heart, sometimes a long time before it. But the effect of partial asphyxia in causing the heart to stop very soon after the respiration is deserving of particular notice.

The second group of experiments on heart and blood pressure was made with apparatus arranged in such a way that the whole experiment could be recorded from beginning to end in such a compass as to admit of photographic reproduction in its entirety. This was managed by recording the general blood pressure on a slowly revolving drum, and taking at intervals a tracing on a second drum, revolving with sufficient rapidity to show each beat of the pulse. About one hundred and fifty experiments were made in this way, and the influence of everything that seemed likely to affect the blood pressure during chloroform narcosis was ascertained. Particular attention was directed to the production of shock or syncope, and to the

effect of chloroform itself on the heart and blood pressure in healthy animals, and also in cases where fatty degeneration of the heart and other organs had been produced by the previous administration of phosphorus. The results of these experiments were unexpected. It was found to be exceedingly difficult to affect the heart reflexly, and recourse was therefore had to direct stimulation of the vagus, by which the heart could be slowed or stopped completely. Instead of this causing the death of the animal, however, it appeared rather to be a safeguard, preventing the anæsthetic from being conveyed in too great quantities to the nerve centres.

From the report, it will be seen that the discrepancy between the views of different schools arises from the fact that sufficient consideration has not been given to the conditions under which the chloroform is given. Although it may paralyze the heart if applied directly to it, yet this condition does not occur in practice, for here it is neither applied to that organ nor yet is it blown forcibly into the lungs. It is inhaled by the patient, and when this is the case it stops the respiration before the heart. The practical outcome of the research would appear to be that deaths from chloroform are not inevitable; that they are therefore preventable, and by due care in its administration they may be with certainty avoided.

The following are the practical conclusions in detail which the Commission think may fairly be deduced from their experiments:

1. The recumbent position on the back and absolute freedom of respiration are essential.

2. If during the operation the recumbent position on the back cannot, from any cause, be maintained during chloroform administration, the utmost attention to the respiration is necessary to prevent asphyxia or an overdose. If there is any doubt whatever about the state of the respiration, the patient should be at once restored to the recumbent position on the back.

3. To insure absolute freedom of respiration, tight clothing of every kind, either on the neck, chest, or abdomen, is to be strictly avoided; and no assistants or bystanders should be allowed to exert pressure on any part of the patient's thorax or abdomen, even though the patient be struggling violently. If struggling does occur, it is always possible to hold the patient down by pressure on the shoulders, pelvis, or legs without doing anything which can by any possibility interfere with the free movements of respiration.

4. An apparatus is not essential, and ought not to be used, as, being made to fit the face, it must tend to produce a certain amount of asphyxia. Moreover, it is apt to take up part of the attention which is required elsewhere. In short, no matter how it is made, it introduces an element of danger into the administration. A convenient form of inhaler is an open cone or cap with a little absorbent cotton inside at the apex.

5. At the commencement of inhalation care should be taken, by not holding the cap too close over the mouth and nose, to avoid exciting struggling, or holding the breath. If struggling or holding the breath does occur, great care is necessary to avoid an overdose during the deep inspirations which follow. When quiet breathing is insured as the patient begins to go over, there is no reason why the inhaler should not be applied close to the face; and all that is then necessary is to watch the cornea and to see that the respiration is not interfered with.

6. In children, crying insures free admission of chloroform into the lungs: but as struggling and holding the breath can hardly be avoided, and one or two whiffs of chloroform may be sufficient to produce complete insensibility, they should always be allowed to inhale a little fresh air during the first deep inspirations which follow. In many struggling persons, but especially in children, it is essential to remove the inhaler after the first or second deep inspiration, as enough chloroform may have been inhaled to produce deep anæsthesia, and this may only appear, or may deepen, after the chloroform is stopped. Struggling is best avoided in adults by making them blow out hard after each inspiration during the inhalation.

7. The patient is, as a rule, anæsthetized and ready for the operation to be commenced when unconscious winking is no longer produced by touching the surface of the eye with the tip of the finger. The anæsthetic should never, under any circumstances, be pushed till the respiration stops; but when once the cornea is insensitive, the patient should be kept gently under by occasional inhalations, and not be allowed to come out and renew the stage of struggling and resistance.

8. As a rule, no operation should be commenced until the patient is fully under the influence of the anæsthetic, so as to avoid all chance of death from surgical shock or fright. .

9. The administrator should be guided as to the effect entirely by the respiration. His only object, while producing anæsthesia, is to see that the respiration is not interfered with.

10. If possible, the patient's chest and abdomen should be exposed during chloroform inhalation, so that the respiratory movements can be seen by the administrator. If anything interferes with the respiration in any way, however slightly, even if this occurs at the very commencement of the administration, if breath is held, or if there is stertor, the inhalation should be stopped until the breathing is natural again. This may sometimes create delay and inconvenience with inexperienced administrators, but experience will make any administrator so familiar with the respiratory functions under chloroform that he will in a short time know almost by intuition whether anything is going wrong, and be able to put it right without delay before any danger arises.

11. If the breathing becomes embarrassed, the lower jaw should be pulled, or pushed from behind the angles, forward, so that the lower teeth protrude in front of the upper. This raises the epiglottis and frees the larynx. At the same time it is well to assist the respiration artificially until the embarrassment passes off.

12. If by any accident the respiration stops, artificial respiration should be commenced at once, while an assistant lowers the head and draws forward the tongue with catch-forceps, by Howard's method, assisted by compression and relaxation of the thoracic walls. Artificial respiration should be continued until there is no doubt whatever that natural respiration is completely reëstablished.

13. A small dose of morphine may be injected subcutaneously before chloroform inhalation, as it helps to keep the patient in a state of anæsthesia in prolonged operations. There is nothing to show that atropine does any

good in connection with the administration of chloroform, and it may do a very great deal of harm.

14. Alcohol may be given with advantage before operations under chloroform, provided it does not cause excitement, and merely has the effect of giving a patient confidence and steadying the circulation.

The Commission has no doubt whatever that if the above rules be followed, chloroform may be given in any case requiring an operation with perfect ease and absolute safety, so as to do good without the risk of evil.

A Clinical Study of the Diuretic Action of Theobromine.

Until the researches of Schröder pointed out the diuretic action of caffeine and theobromine, we had no means of exciting the secretion of the kidneys in a way corresponding to the action of pilocarpine on the sweat and salivary glands. The two cases are not wholly parallel, for pilocarpine exerts its action on the glands through the nervous system, whereas caffeine and theobromine increase the renal secretions through an influence on the renal epithelium. Caffeine is not limited in its physiological effects to the kidneys, for it acts upon the nervous and circulatory systems as well. Upon the kidneys its effect may thus be a double one: first, to increase the amount of urine by exciting the renal epithelium, or, by contracting the renal vessels, diminish the blood supply and thus lessen the amount of urine. It is possible to counteract the stimulation of the vaso-motor centres and prevent the narrowing of the bloodvessels by the administration of chloral or paraldehyde: this may prove a dangerous procedure, as too large amounts are sometimes required.

Dr. Christian Gram has made careful clinical observations with caffeine and paraldehyde, with theobromine, and with a compound of theobromine with sodium and salicylic acid, upon several cases, chiefly of chronic renal and cardiac disease.

The combination of paraldehyde with caffeine gave excellent results as a diuretic, thus affording a clinical confirmation of what v. Schröder has demonstrated physiologically. There are, however, certain drawbacks which make this method impractical. Paraldehyde is not well borne; it destroys the patient's appetite and may prove to be even dangerous.

Theobromine alone gave good results as a diuretic, but difficulties were also encountered here. Its insolubility made its absorption slow or impossible, and it readily excited vomiting. The next step was to find a soluble compound of theobromine, which was realized in the theobromine-sodio-salicylic compound: this contains almost exactly fifty per cent. of theobromine, dissolves in half its weight of warm water, and remains in solution on cooling. Theobromine requires 1000 parts of water to dissolve one part. The compound was always well borne, even by weak patients, and was readily absorbed. Theobromine is the active ingredient, since it gives rise to copious diuresis when it is absorbed, as indicated by its presence in the urine. The salicylate of sodium in this compound is probably not responsible for the diuretic action, since no diuresis follows the administration of salicylate of sodium when this is given first, while abundant flow of urine occurs after the administration of the compound with theobromine. Theobromine-sodio-

salicylate is harmless, and the usual dose for twenty-four hours is about a drachm and a half, given in single doses of fifteen grains each.—*Therapeutische Monatshefte*, January, 1890.

Diuretin, a New Diuretic.

The diuretic action of caffeine being open to the objection that it may be accompanied by sleeplessness and restlessness, it has occurred to Dr. Gram, of Copenhagen, to employ a sodio-salicylic compound of theobromine, to which he has given the name of "diuretin." Notwithstanding the strong resemblances between theobromine and caffeine, diuretin is alleged to produce strong diuretic action without in any way affecting the central nervous system, and to give satisfactory diuresis in cases of renal cardiac dropsy in which digitalis and strophanthus have been inoperative.—*Lancet*, January 4, 1890.

The Subcutaneous Administration of Iron

Prof. Rosenthal, of Vienna, states that this method is advantageous in the cases of delicate neurasthenic persons who suffer, as such often do, from atonic dyspepsia. Here even small doses of iron, taken by the mouth, will sometimes produce disorder of the stomach. In severer forms of disease, such as pernicious anæmia, malarial cachexia, and the graver forms of leukæmia, there does not appear to be any advantage in the employment of the hypodermic method of administering iron. Two new preparations are recommended by Prof. Rosenthal for hypodermic use—viz., the peptonate and the oleate of iron. He states that he has never seen any bad results follow subcutaneous injections of iron preparations, and he explains the fatal consequences that have occasionally been reported as following injections into vascular tumors of the head, by the fact that the vessels composing such tumors are generally closely connected with the veins of the dura mater. He has frequently seen venous enlargements in the legs undergo shrinking after being injected with dilute perchloride of iron, no dangerous symptoms ever ensuing.—*Lancet*, December 14, 1889.

Action of Tincture of Iodine in Relieving Vomiting.

This is by no means a new treatment for vomiting, but as one of the remedies at our service, when less irritating means fail, it deserves remembrance and has undoubted value. Nineteen cases of vomiting from various causes were treated with much success in the service of Dr. Roques. Among them were eleven cases of vomiting in patients with phthisis. In this disease tincture of iodine is of most service where the disease is not too far advanced, and in those suffering from dyspepsia in the early stages of tuberculosis. The attacks are aborted or reduced in frequency. Most of the patients took the drug readily; it was administered in water well diluted—ten drops in four ounces of water, taken in three portions, after meals. Its ingestion was usually followed by a sensation of warmth in the stomach, as if a glass of strong liquor had been taken, which lasted from five to twenty minutes. The disadvantage of this treatment is that in a certain number of cases

iodism is brought on, a result which depends more on the susceptibility of the patient than upon the dose of the drug. These symptoms disappear quickly after stopping its administration.—*L' Union Médicale*, December 10 1889.

Hypnotism in Therapeutics without Suggestion.

During a recent visit to Paris Prof. Wood spent some time studying the results obtained by certain physicians who have much faith in hypnotism.

The accepted theory, stated in a few words, is: that suggestions made during the hypnotic state are capable, not only of affecting the actions of the individual during the hypnotism, but also of affecting the functions of organic life so as to alter a diseased process without the patient being conscious that any suggestion has been made.

On his return Prof. Wood determined to try the therapeutic effect of hypnosis without suggestion. Two cases were selected: one with tremors simulating those of paralysis agitans; the other, a sufferer from paraplegia.

The history of the tremors case was that some years previously the woman had been attacked by tremors like those now present, but had recovered after three years' illness; that about three months before entering the ward of the hospital the tremors had returned. They had stopped at one time for two weeks, but when the case was taken in charge they were continuous in one arm, and exactly simulated those of true paralysis agitans. This woman was found to be a good subject for hypnosis. The tremors continued during the hypnotic sleep. No hypnotic suggestions whatever were made to her, but the second treatment was followed by great lessening of the tremors, and four treatments sufficed for a cure.

In the second case the paralysis of the legs was almost complete, associated with irregular patches of anæsthesia on the legs, absolute loss of the patellar reflexes, and great complaint of weakness and numbness in the arms. The woman had not the appearance of being hysterical, but the diagnosis of hysterical paraplegia had been made by Dr. Dercum. The ordinary treatment had been instituted without avail. During the hypnotic treatment no suggestions were made to the patient. After the second *séance* the numbness disappeared from the arms; after the third the woman was able to stand; after the fifth she could walk; after eight treatments she was able to walk long distances, stand very well on one leg, and was about to go from the hospital as cured, although her knee-jerks had not returned.

Dr. Wood does not commit himself to any theory as to the method in which hypnosis produces cure, although as yet he does not see why all the effects obtained cannot be accounted for on the theory of mental influence. For the exertion of such influence it is not essential that the physician should speak to the patient specifically about his or her case; especially is this true at the Paris and Nancy Clinics, since the whole atmosphere is heavy with faith. The patients come to be cured of their diseases; they undergo a process which to the ignorant is most mysterious, and which even educated people must, until they are accustomed to it, look upon as "uncanny." The elements of profound mental impression are all present, and it needs no words of the physician to bring them into action.—*Lancet*, January 11, 1890.

The Therapeutic Value of Senna-pods.

Mr. E. F. Salmon has found that the senna-pods are richer than the leaves in cathartin, the active principle of senna, which is a combination of cathartic and phosphoric acids with a magnesium and calcium base, while, in addition to cathartin, there is found in the leaves a volatile oil which is absent in the pods. It is, therefore, on this account that the pods are free from nauseous taste, and are less likely than the leaves to cause griping pains. Treatment with alcohol removes the resinous and odorous principles to which the griping and nauseous taste are due, and will leave the cathartin unchanged. Cold water, on the other hand, readily dissolves the cathartin from the pod, while the cathartin from the leaf, owing to the impervious nature of its epidermis, is insoluble in water. Accordingly Mr. Salmon recommends cold water as the best menstruum for the preparation of a fluid extract. For one pound of pods six pints of cold distilled water for the first and about three pints for the second maceration is a sufficient quantity to use. The fluid extract is tasteless, and in doses of from one-half to two fluidrachms will almost invariably produce purgation.—*Therapeutic Gazette*, Jan. 1890.

Caution regarding the Extract of Male-fern.

A Bohemian practitioner mentions a case where, having administered two drachms of extract of male-fern in gelatin capsules, followed by castor oil, which had brought away a considerable length of worm, he was somewhat surprised to be aroused at five o'clock on the second morning to go to the patient, who had just had a violent rigor, and was at that time feverish and suffering great pain in the abdomen, with diarrhœa and constant vomiting. The temperature was 103° F., and the stools presented the characteristic odor of male-fern. For these symptoms ice and morphine were prescribed, by which means the sickness was controlled, but the intestinal catarrh required treatment for several days. The writer came to the conclusion that the explanation of the late appearance of the symptoms was due to the fact that the extract in the capsules had become inspissated, and, therefore, difficult of solution in the juices of the stomach. Some little time later he gave the same patient a drachm and a half of the extract in the fluid form, and succeeded in bringing away the whole of the worm without causing any disagreeable symptoms.—*Lancet*, January 4, 1890.

Strophanthus as a Remedy for Young Children.

After a study of the action of this remedy in young children, Professor Moncorvo, of Rio Janeiro, believes that it possesses special advantages in these cases. As a cardiac tonic and as a diuretic it is undoubtedly of especial value, not only on account of its prompt action but because it is harmless even to very young patients.

In the pulmonary or broncho-pulmonary affections of children, often complicated with cardiac insufficiency, strophanthus may be of much service.

The action of strophanthus does not seem to be a transitory one, for in a certain number of these little patients the good results brought about by it

persisted for a long time after the drug had been given up. Further, it has no action on the nervous system or on the temperature.

A dilute tincture of strophanthus (1 to 20) was used, and the dose varied between four and eighteen drops in twenty-four hours, according to the condition and age of the patient.—*L'Union Médicale*, January 9, 1890.

Phenylurethane, a New Antipyretic.

A new antipyretic, which is said to combine antirheumatic and analgesic properties, has been introduced under the name of "phenylurethane," by Professor Giacomini. It is a compound belonging to the aromatic group, resulting from the combination of aniline with chloro-carbonic ethyl ether. It is a white crystalline powder, insoluble in water, but freely soluble in concentrated alcohol. That its employment is not altogether free from anxiety may be gathered from the recommendation to administer it as a solution in Marsala wine, which is said to prevent collapse, cyanosis, and other unpleasant symptoms. On the other hand, it is claimed to be an energetic and certain antipyretic. For the relief of the pain and swelling of acute and chronic articular rheumatism it has been employed with advantage in doses of seven grains and a half. As an analgesic it is not so certain in its effects, acting beneficially in some cases, whilst in others the result is negative. A dose of seven and a half grains is said to be equivalent to fifteen grains of antipyrin. It is obviously a remedy which will require to be used with caution, both from its composition and from the marked resemblance its actions bear to those of pyrodin.—*Lancet*, January 4, 1890.

A New Solvent for Therapeutical Purposes.

Sulpholinic acid, obtained by the action of sulphuric acid on certain vegetable oils, appears in its concentrated form as a yellowish liquid with a neutral reaction, and having a taste at first sweet and then bitter and astringent. When heated it dissolves numerous organic and inorganic substances, such as sulphur (2 per cent.), iodoform (3 per cent.), camphor (25 per cent.), naphthaline, chrysophanic acid, and coloring matters. These solutions readily penetrate the skin, which completely and rapidly absorbs them. As a vehicle for external applications it seems more generally useful than vaseline, oleic acid, or glycerin.—*Journ. de Méd. de Paris*, 1889.

The Value of Large Subcutaneous Injections of Salt Solution.

Von Münchmyer, of Dresden, reports eight cases of hemorrhage, seven of them in confinement, which were successfully treated by the subcutaneous injection of a six-tenths of one per cent. salt solution.

A rather large-sized hollow needle is sterilized by heating it over an alcohol flame, and the rubber tube and funnel, or irrigator, are disinfected with a five per cent. solution of carbolic acid, directly after which the apparatus is filled with the salt solution. One to two pints of the solution, at a temperature of 37° C., are injected into the back, between the scapulæ, or near the axillæ, at one or several points.

The absorption and distribution of the solution are promoted by massage of the part.

This method is less dangerous than transfusion, and is comparatively painless.—*Therapeutische Monatshefte*, October, 1889.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM OSLER, M.D., F.R.C.P. LOND.,

PHYSICIAN-IN-CHIEF OF JOHNS HOPKINS HOSPITAL, BALTIMORE.

AND

J. P. CROZER GRIFFITH, M.D.,

INSTRUCTOR IN CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA

EPIDEMIC INFLUENZA.

NOTHNAGEL (*Wiener med. Presse*, 1890, No. 1, 25) is of the opinion that influenza is a bacterial disease; for although the actual proof of this—the finding of the specific organism—has not yet been offered, yet its clinical course and its epidemic character mark it as a typical infectious disease, such as is caused by the entrance of a microörganism into the system. It is undoubtedly not the microbe, but the toxin produced by it, which produces the symptoms.

The clinical characters of influenza may be at times so different that the belief could be entertained that we had to do with different diseases. In typhoid fever there may be a cerebral typhoid, a pneumo-typhoid, a nephro-typhoid, and the typhoid with abdominal symptoms. It is always the same poison, which probably attacks the organ possessing the least power of resistance. The same is true of influenza, and it is the author's opinion that the influenza poison may act upon different organs, and occasion different symptoms in different cases.

In nearly all cases this poison produces fever, which varies as regards its duration and character. There are isolated and rare instances in which influenza was unaccompanied by fever. Next to the fever the most important symptoms are affections of the respiratory apparatus. After these are disorders of the nervous system (headache, sleeplessness, neuralgia, muscular pains). The author has observed some cases which afford convincing proof of the analogy of influenza to other infectious diseases. After such affections, namely, there are often evidences of motor and sensory irritation or paralysis; and he has seen cases of influenza in which, after the disease had passed, neuralgias, especially trigeminal, remained. A third department of the economy, the digestive tract, is attacked by influenza with relative frequency (loss of appetite, vomiting, diarrhœa).

In many cases, still other symptoms make their appearance; such as

asthmatic attacks, due to direct action of the influenza toxin on the phrenic or vagus or on the nerves of the lung themselves.

In the vast majority of cases influenza is not a dangerous disease. A danger lies in the liability of a capillary bronchitis or a catarrhal pneumonia to develop and to produce death, especially in children and in old and debilitated persons.

The fear has been entertained that croupous pneumonia might develop from influenza. Nothnagel takes the ground that croupous pneumonia is a disease *sui generis*, which has nothing to do with the influenza as such. Pneumonia, as is well known, not rarely develops in persons suffering from an ordinary catarrh of the respiratory passages, and may, of course, do so in the case of the catarrh of influenza; and it is only in this sense that the frequency of pneumonia is increased by the existence of influenza, in that it prepares a suitable nidus for the development of the pneumonia cocci.

Whether influenza is directly contagious is not yet decided, but the author considers it probable, though the great majority of cases contract the disease by infection through the inspiring of the germs in the air.

The treatment must be directed solely against the symptoms, as we possess no specific against the influenza poison. The reduction of fever in every case is not only unnecessary but injurious. The severe pains are to be relieved by antipyrin, acetanilid, and phenacetin. The convalescent should not be permitted to go out too soon, as full recovery is delayed in this way. Nothing can be done in the nature of prophylaxis.

POTAIN (*L'Union Médicale*, December 21, 1889, 878) quotes the generally accepted definition of the grippe as being a febrile, epidemic malady, characterized by a catarrh of the respiratory passages and often of the digestive tract as well, and presenting general phenomena and nervous troubles out of proportion to the real gravity of the affection. This definition, however, is insufficient, because it leaves out of consideration a certain number of cases, and does not completely exclude others which have no connection with the disease. Yet it is very difficult to formulate a definition for a disease which has neither anatomical lesions nor symptoms always characteristic. We have, therefore, to consider the diverse individual variations which the affection presents.

There is a short prodromal period, sometimes absent, characterized by an initial chill or repeated sensations of chilliness, pains in the back, head, and joints, and especially a marked prostration, both moral and physical. There is often sufficient restlessness and anxiety to raise the fear of the approach of some severe disease. This prodromal stage may last from twelve hours to two days.

With the development of the catarrhal symptoms there appear coryza, pharyngitis, laryngitis with hoarseness and even aphonia, cough, and sometimes decided dyspnœa. The physical signs over the chest are absent or insignificant. The digestive disturbances consist in loss of appetite, coated tongue, and sometimes pain in, and slight distention of, the abdomen. Constipation occurs at first, but later diarrhœa with colicky pain may appear. The urine may contain albumin even in light cases. Vertigo, ringing in the ears, and great depression may be seen. The febrile movement is usually characteristic; the temperature rising suddenly to 104° F. In other cases it

may go up more gradually though with greater variations than in a continued fever. In still other cases the fever may be of a distinctly remittent type. An eruption is occasionally witnessed; erythematous or scarlatinal in character, or herpetic or urticarial. The predominance of certain symptoms in any case determines the particular variety of the disease, such as the cephalic, abdominal, thoracic, etc.

LIEBREICH (*Therap. Monatshefte*, January, 1890, 55), in discussing the present epidemic as observed throughout Europe, says that we will perhaps later be able to determine with positiveness whether it is identical in nature with what is usually known as grippe and with the influenza epidemics which have formerly been described. At any rate its violence is a most prominent characteristic. He believes that the direction of the wind, or atmospheric influences, are not the only causes of its spreading, but that it is undoubtedly communicated from person to person. The rapidity with which it develops in schools, manufactories, and the like, is a proof of this. As with many other infectious diseases, the cause is unknown, and the therapy must therefore be entirely symptomatic. Following the course of the symptoms, we see that the affection is quite different from what is usually denominated "influenza." The first symptom, though not in all cases, is chilliness—rarely a rigor—and with this the evidences of catarrhal affection of the nasal, pharyngeal, and bronchial mucous membrane, but of very variable intensity. In all marked cases pain in the hips, thighs, head, and back, especially in the region of the sacrum, is characteristic. Irritation of the conjunctiva, seen in most cases of general catarrh, is here of inconsiderable and of short duration. Intestinal irritation is rare. The fever is slight and generally disappears on the second or third day, and the pulse is not much accelerated, but the exhaustion which follows is very characteristic, being persistent and out of all proportion to the degree of fever. The skin is generally moist, in contrast to its condition in pneumonia. The urine is light colored, and often contains abundant urates. The affection seldom terminates fatally, danger arising only in those cases in which there is previous disease or weakness of certain organs, particularly the heart and lungs.

These symptoms indicate the line of treatment to be carried out. In the beginning, in case there is no perspiration, baths, warm drinks, or, perhaps, Dover's powder should be given. If, on the other hand, there are exhausting perspirations, the whole body may be rubbed with spirits of camphor. The characteristic and very severe pains are modified by antipyrin in very different degrees. Sometimes 15 or 30 grains will entirely and permanently remove them. The diet varies according to the case. In this, as in other affections of the bronchial mucous membrane, "apple-water" is a very useful remedy. This is prepared either by soaking slices of apple for a considerable time in hot water, and then pouring this off, or, still better, by thoroughly boiling apples in a large amount of water until they are disintegrated, straining the water through a cloth, and sweetening. This should be drunk warm. Large quantities may be taken without disturbing the stomach.

At a recent meeting of the Berlin "Verein für innere Medicin," RENVERS (*Berl. klin. Woch.*, 1890, No. 1, 16) read a paper on the same subject. He said that the recent epidemic is the seventh occurring in this century. The disease was first described in the twelfth century. Its spread is independent

of climate, the direction of the wind, etc. It may occur in the tropics or in the far north. The disease is ushered in either by severe nervous or by gastric or respiratory symptoms. It attacks individuals of all classes, but its mortality is slight. The cases which first exhibit nervous symptoms run the most rapid course; next in speed are those with catarrhal symptoms, while the longest to recover are patients in whom there are disturbances of the digestive system. Fatal cases are attributable to complications, especially catarrhal and croupous pneumonia, and affections of the throat and ear. In the epidemic of 1833 many cases died of pneumonia. Phthisical patients or others with debilitated constitutions, if attacked by grippe, usually die of their primary disease.

Influenza is an infectious disease of unknown nature, which appears to start from some centre—often Russia—and to spread over whole countries, frequently crossing the ocean. It begins acutely with headache and burning skin, followed in a few hours by nausea, restlessness, injection of the eyes, and fever of 104° and over. These symptoms increase in severity; in ten to twelve hours there is perspiration, and in twenty-four hours the temperature falls by crisis and the process is over. The depression and the pains in the limbs and back constitute the chief complaint, and continue until full recovery has taken place.

A second form of the affection exhibits a slowly rising temperature during two days, accompanied by depression, pain in the joints, severe cough, dryness in the throat, and vomiting caused by the cough. The temperature remains high two days longer and then falls gradually. The catarrh disappears after several days; full recovery ensuing after about ten days.

In the third form there is disturbance of the digestive apparatus as well as of the respiratory; vomiting occurs, which greatly relieves the patient, and fever develops. The disease gives the impression of a commencing typhoid.

Catarrhal and croupous pneumonia were observed as complications in the Charité Hospital (Berlin), and instances were noticed in which the inflammation of the throat extended to the ear.

The prognosis is favorable. Treatment consists in the reduction of the high fever by antipyrin, by which means the headache and other symptoms will be removed.

In discussing the subject FÜRBRINGER took the ground that the disease was not contagious. He recognized the three varieties of the affection. He believes further that it is often accompanied by an abortive broncho-pneumonia, as shown by the presence of blood in the sputum. He does not believe in the efficacy of the antipyretics in the treatment of the affection, and recommends rather that morphine be given to allay pain if severe.

LOWENSTEIN accepted the possibility of its transmission from person to person, and had observed relapses in patients who had exposed themselves to the weather too soon.

LEYDEN (*Munch. med. Wochenschr.*, 1890, No. 2, 30) speaks of the widespread distribution of the present epidemic of influenza. Not much less than fifty per cent. of the population, including all ages and classes, are attacked by it. He accepts the three forms described by Renvers, and enumerates the symptoms. Common to all is the sudden development of the disease, with fever and chill or chilliness. The fever is often ushered in by vomiting and other

gastric symptoms, or by redness and swelling of the conjunctivæ. It reaches 102° to 104° F., lasts two or three days, and disappears either by crisis or lysis. Characteristic of the affection are the great prostration and the very tedious recovery. A tendency to hemorrhages from various parts of the body is a frequent complication. Herpes, urticaria, ecthyma, and erythema have been described. The persistence of the anorexia is a noteworthy feature. In addition to the ordinary symptoms of the nervous form, he has observed supra-orbital neuralgia and sciatica. Cerebral symptoms may also appear, as coma and stiffness of the neck; but it is doubtful whether otitis and meningitis can be attributed to influenza. The disease can complicate or be complicated by other disorders. The mildest combination is that with bronchial catarrh or bronchial asthma, from which, however, some old people have died. His phthisical patients have usually recovered from the influenza, even when quite sick. In the last half of the epidemic in Berlin, pneumonia was a frequent complication, as was also the case in St. Petersburg. In a large number of cases the pneumonia seemed to be irregular, in that it was rather a congestion than a true hepatization. In many cases, otherwise typical, there was at no time decided dulness on percussion. The expectoration, too, was often not rust-colored or bloody. The author believes this to be a catarrhal pneumonia peculiar to influenza. Cases of genuine croupous pneumonia also occur. He considers the disease miasmatic rather than contagious.

The pandemic in Berlin was for the most part benign, the cases of death being due almost always to complications.

Influenza and dengue have many points of similarity, namely, that both are pandemic, spread with great velocity, are ushered in by high fever, are attended by a tedious convalescence, run in general a favorable course, and seldom terminate fatally. Two important differences are, first, the localization of the pain, which in dengue is almost always in the knee-joint, and produces the characteristic limping gait; second, in the condition of the skin, which in dengue exhibits a scarlatinal exanthema. The fact that dengue likewise came from the east, and arose in countries bordering on Russia, makes it difficult to deny a certain relationship between the affections.

The discussion at the Medical Society of St. Petersburg (*Wien. med. Presse*, No. 52, 1889) on the subject of influenza is of particular interest, since this was the first large European city in which the epidemic appeared. Moritz stated that the disease began there during the last days of October, and had attacked about one-third of the entire population. He recognizes the three forms of the disease to which we have already alluded, *i. e.*, 1, the nervous form, with symptoms of affection of the central nervous system; 2, the catarrhal form, in which the affection of the respiratory organs predominates; 3, the gastric form, with violent vomiting, diarrhœa, coated tongue, and loss of appetite. Most of the cases of all these forms recovered completely in two to three days, and many abortive cases were seen in which there were but indications of a few of the symptoms. After the first attack, and after complete apyrexia, there not infrequently developed a second stage with violent catarrhal symptoms and more or less high fever. This new outbreak of the disease is rather to be considered an exacerbation than a relapse. It is apt to appear on the fifth to the seventh day of the disease, and is oftenest seen in those patients who have not sufficiently protected themselves during recovery.

LIEVEN expressed the doubt whether this epidemic is identical with influenza or grippe. Influenza develops during bad weather accompanied by a northeast wind. At the time of the appearance of this epidemic, however, the weather was warm and moist, which might idicate that the cause depended on the decomposition of vegetable matter, as in malaria. Many cases, especially in the better class who are not so much exposed to the weather, exhibited no catarrhal symptoms whatever. This fact, too, would sustain the belief that the disease was something new, and not to be identified with grippe.

KERNIG believed that the epidemic was influenza, but claimed that this word had often been wrongly applied to all severe catarrhal affections. If the word be used in its wider and proper sense, it is fully applicable to the affection under consideration, in which there may be distinct varieties without evidence of catarrhal symptoms. He had been able to recognize temporary enlargement of the spleen in all the cases he had seen. In a number of instances he had observed severe catarrh of the respiratory tract follow a very short attack of the disease. Not infrequently the influenza had been complicated by catarrhal pneumonia, and less often by croupous pneumonia. He witnessed one case of the nervous form which exhibited all the symptoms of meningeal irritation. He regarded the disorder as purely miasmatic, and not contagious.

Several other speakers took part in the discussion, mentioning such circumstances as the occasional occurrence of various exanthemata and of œdema.

THE FEBRILE REACTION IN INFLUENZA.

FRÄNTZEL (*Centralblatt f. klin. Med.*, 1890, No. 2, 25) has made careful observations on the course of the temperature in 50 uncomplicated cases of influenza; no antipyretic being meanwhile administered. Only the severest cases came under observation, as only these were admitted to the hospital where the studies were made.

In one case the temperature reached 105.8°, and in 11 the curve exceeded 104°; very few of the cases failed to reach 102.2°. The duration of the febrile period varies much. In general the average is perhaps three or four days. Rarely it exceeds five days, and in only 2 cases did it last longer than a week. There are two forms of onset of the febrile reaction. In the one the rise of temperature is rapid and continuous, reaching the maximum generally before twenty-four hours is past. In the second form the temperature takes three or four times as long to reach the maximum, and exhibits remissions, generally in the morning.

As an intermediate form may be described that in which the temperature rises rapidly—perhaps 4.5° in four hours—to be then followed by a slight remission, and this again by a second rapid rise to the maximum.

The acme usually continues for a short time, and the temperature then falls according to two different methods. In the first it exhibits a remittent type, each evening's exacerbation during several days being slightly less than that of the preceding evening. The second type is that exhibiting a rapid continuous critical fall to normal or below it. The degree of reduction of temperature may equal 5.2° or 7° within twelve or twenty-hours.

The majority of the author's cases exhibited the first type of reduction of temperature. A few intermediate or mixed forms came under his observation. Among these were cases in which, after an afebrile interval of four or six days there occurred a rise of temperature lasting twelve hours, and reaching 104.4° or more. One genuine case of relapse was noted.

Influenza or Dengue.

After discussing the question of the identity of influenza with dengue, Proust (*L' Union Médicale*, 1889, December 19, 872) sums up his remarks by saying that the epidemic of influenza prevailing at Paris does not present all the classic and ordinary characters of the grippe as they are usually observed; but that it does not, on the other hand, exhibit the *ensemble* of symptoms of dengue as described by physicians who see it in the countries where it prevails. The epidemic is certainly the same affection which now exists at St. Petersburg, Berlin, Rome, and Madrid. It is remarkable for the short duration, as well as for the benignity of the symptoms attending it.

In discussing this question, which has been repeatedly raised regarding the present epidemic, Limarkis, who, living in Constantinople, has had ample opportunities to see both diseases, gives a series of differential symptoms in the *Revue Médico-pharmaceutique*. These arranged in tabular form are as follows:

	Dengue.	Influenza.
Localization:	Hot countries.	All climates.
Duration of an epidemic:	Three to five months.	About one and a half months.
Spread:	Slowly, from small foci.	Rapidly, attacking large districts simultaneously.
Commencement of the disease:	Always sudden.	Almost always sudden.
Fever:	Always very high.	Not always very high.
Nervous system:	Prostration, pain in the head and limbs.	The same.
Larynx and trachea:	Seldom attacked.	Always attacked.
Dyspnœa:	Never.	Common.
Gastric symptoms:	Always; violent, persistent.	May be absent.
Eruption:	Always; beginning in the face, descending, erythematous, ending in desquamation.	Rare, irregular.
Headache:	Sensation of external pressure; iron hoop.	Violent, internal, often neuralgic pain.
Complications:	Rare; of heart, liver, and kidneys.	Common; bronchioles and lungs.
Convalescence:	Very slow.	Usually rapid.
Prognosis:	Always favorable.	Often occurs in malignant forms.
Attacking animals:	Dogs, cats.	Horses.

Still further proof that influenza is not a form of dengue modified by climate is the fact that the former occurs in hot countries in exactly the same form as in northern Europe, and that the two diseases have just appeared in Constantinople, the one shortly after the other.—*Berliner klinische Wochenschrift*, No. 2, 1890.

Estimation of the Blood-corpuscles in Health.

Reinecke (*Fortschr. d. Med.*, June 1, 1889) made a long series of observations on his own blood in the effort to determine the relative proportion of the red and white corpuscles. The average derived from the total number of his counts showed a ratio of 1 white to 720 red blood-cells. He states, however, that this may vary from 1 in 100 on the one side, and to 1 in 500 on the other, without passing the limits of what must be called normal. This variation, too, may take place within a comparatively short time, and while the individual remains under conditions of life as unchanging as possible.

Observations on the Urine in Pernicious Anæmia.

Mr. Hunter (*Practitioner*, September, November, December, 1889) contributes another valuable addition to the studies which he has already made on this subject. He reports in brief a well-marked and fatal case of the disease. There were seen increasing weakness and anæmia without emaciation, diarrhœa without gastric symptoms, fever only rarely, epistaxis, a well-decided lemon color, and on one occasion a slightly icteric hue. The spleen was perceptibly enlarged during the last three months of life. The blood at one examination gave 64 per cent. of red blood-cells and 56 per cent. hæmoglobin; and at another time 19 per cent. of corpuscles, and 22 per cent. of hæmoglobin. The author regards this high percentage of hæmoglobin as the only characteristic presented by the blood in pernicious anæmia. A high degree of oligocythæmia and poikilocytosis is common also to traumatic anæmia of sufficient intensity.

The urine in this case was repeatedly and carefully examined; its color was that of extremely dark sherry with something of an olive tinge, this being most marked during the exacerbations of the disease. Bile pigment and hæmoglobin could at no time be found in it, but a very large amount of pathological urobilin was discovered. There is no doubt that pathological urobilin is, in all cases, derived from the disintegration of hæmoglobin; the author believes mainly through the medium of the bile-pigments, since he found an increased secretion of bile in this case, as shown by the color of the feces. Another probable source of the urobilin in pernicious anæmia is the pigment deposited in the liver. He thinks there can be no doubt that the excretion of such large amounts of pathological urobilin is evidence of the hæmolytic nature of pernicious anæmia, and is diagnostic of the disease. In traumatic anæmia the urine is invariably extremely pale.

The fact that the hæmolysis in pernicious anæmia takes place in the portal circulation explains why hæmoglobinuria does not occur in this disease. The hæmoglobin liberated is disposed of in the liver, being excreted as bile-pigment or stored up in the form of blood-pigments; when the blood destruction is very great, the liver is unable to dispose entirely of the hæmoglobin,

and it passes into the general circulation. Evidence of this is seen in the deposition of a large quantity of pigment in the kidneys. It is remarkable that in no instance has hæmoglobin or any of its immediate derivatives been found in the urine, even when large amounts of pathological urobilin pointed to an extensive destruction of blood. This is probably to be explained on the ground that the hæmoglobin liberated from the corpuscles reaches the kidneys combined in some way with the albumin of the corpuscles or of the plasma, that it does not answer in the urine to any of the ordinary reactions; when it does appear in the urine it is in the form of yellow albuminous droplets, only recognizable on microscopic examination. A further difference between simple hæmoglobinuria and pernicious anæmia consists in the changes found in the kidneys. In the former there occur menisci of hæmoglobin in and around the glomeruli, since it is through them that the principal excretion takes place. In the latter affection there is a deposition of finely granular blood-pigment in the epithelial cells of the primary and secondary convoluted tubules, while the loops of Henle are comparatively free, and in the collecting tubes and the glomeruli there is not a trace of pigment of any kind. This leads to the conclusion that in pernicious anæmia the hæmoglobin is excreted by the epithelial cells of the convoluted tubules, and that within the cells it has undergone disintegration and been converted into blood-pigment.

An important fact in connection with the case reported was that with each exacerbation of the disease there was a reappearance in the urine of renal cells and coats containing granules of blood-pigment. The cells were such as had probably become detached from the convoluted tubules during the extra strain thrown upon them by the increase of pigment supplied them at these times. The author regards the appearance of pigment-cells in the urine as of great diagnostic value in doubtful cases.

Hunter finally takes up the consideration of the excretion of iron in the urine in health and in disease, and details the method to be employed in its estimation. The results of his investigations indicate that, in his case at least, there was an increase in the amount of iron excreted. This, too, points, he thinks, to an excessive destruction of blood as the basis of pernicious anæmia.

Summarizing his observations on the urine in pernicious anæmia, he states that: 1, the presence of pathological urobilin in great quantity; 2, the presence of blood-pigment; and 3, an increased excretion of iron, all point to an excessive destruction of the blood as the cause of the disease, and all agree in that they vary from time to time in proportion to the aggravation or amelioration of the other symptoms. They are, also, of great diagnostic value when present, though pernicious anæmia need not always show these changes.

Action of the Digestive Secretions on the Tetanus Bacillus.

Sormani (*Riforma Medica*, 1889, No. 95) concludes as a result of his experimental studies on the influence of the digestive secretions upon the tetanus bacillus of Rosenbach:

1. The flesh of animals which have died of tetanus may be eaten without danger.

2. The producer of tetanus passes through the gastro-intestinal canal of the herbivora and carnivora without producing fatal results or any especial symptom of a diseased condition.

3. The digestive secretions of the herbivora and carnivora exert no destroying or weakening action upon the tetanus bacillus.

4. An animal can, without harm, take into the gastro-intestinal canal a quantity of the tetanus poison far greater than that which will invariably produce death if given hypodermatically.

5. These facts arouse some doubts regarding the theory which would connect the pathogenesis and symptomatology of tetanus with the absorption of metabolic alkaloidal products of the bacillus.

6. The feces of animals fed with material containing the tetanus bacillus can become the means of the diffusion of the virus.

Diabetic Coma and its Treatment.

Stadelmann (*Deutsch. med. Wochenschr.*, 1889, No. 46), as the results of clinical and experimental observation on this subject, comes to the following conclusions:

1. Diabetic coma—apart from accidental coma due to other causes—occurs only in the case of diabetic patients whose urine contains oxybutyric acid.

2. Almost equivalent in value with the recognition of oxybutyric acid is the determination of the amount of ammonia in the urine; while it is also far easier of performance.

3. Diabetic patients with an excretion of ammonia of more than 1.1 grammes per day are in danger of becoming severe cases of the disease.

4. Patients excreting 2, 4, 6, and more grammes of ammonia daily need constant watching by the physician, and are in constant danger of passing into diabetic coma.

5. If the determination of the presence of oxybutyric acid, or the estimation of the amount of ammonia cannot be carried out, at least the chloride of iron test should be made. If this gives a positive reaction, oxybutyric acid is present in the urine, and the cases answers to the statements made in the 3d and 4th conclusions. The converse of this is, however, not always true, for there are cases of diabetes with oxybutyric acid in the urine, and even suffering from diabetic coma, whose urine does not give the chloride of iron reaction.

6. These severe cases in which there is an increase of the secretion of ammonia, or the presence of oxybutyric acid with the chloride of iron reaction in the urine, are only with the greatest caution, and with the simultaneous exhibition of alkalies, to be put upon a strict meat diet.

7. If there is fear of the development of diabetic coma, the patients should be put upon full doses of the alkalies, though, of course, with strict oversight and with proper interruptions in the treatment.

8. If coma has already developed, large intra-venous injections of a solution of the carbonate of sodium and the chloride of sodium should be given as quickly as possible; the patient being carefully watched meanwhile. The injections should be stopped if threatening symptoms appear, such as irregularity or marked retardation of the pulse, convulsions, or temporary cessation

of respiration. After a time they should be recommenced, and the process continued until the urine becomes alkaline.

9. Subcutaneous injections of carbonate of sodium are not to be commended, on account of the pain and the deep-seated inflammation they produce.

The Night-sweats of Phthisis Treated with Camphoric Acid.

Leu (*Charité Annalen*, 1889) has employed camphoric acid—produced by the oxidation of camphor with sulphuric acid—against the night-sweats of phthisis, in 13 patients; the drug being administered 155 times in all. In 60 per cent. complete success was obtained, this consisting in complete dryness of the skin. There were no good results obtained in 18 per cent., and partial success in 22 per cent. The dose employed varied from 30 grains given in the evening, to 75 grains administered in two doses. The good effects were often not observed until the second night after the drug was given; and the action of the medicine often then persisted during several nights.

The author found the value of camphoric acid greater than that of atropine, and the effects more lasting. The drug was also free from disagreeable secondary effects, except that in one case an attack of urticaria developed, which, however, had probably nothing to do with the medicament. He tried its alcoholic solution externally for bathing the body, and found it decidedly superior to vinegar in preventing local sweating.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF PENNSYLVANIA; SURGEON TO THE UNIVERSITY PHILADELPHIA, AND GERMAN HOSPITALS.

The Treatment of Cicatricial and Cancerous Œsophageal Strictures.

Le Fort (*Bulletin générale de Thérapeutique*, January 15, 1890) divides the contractions of the œsophagus which may require treatment into two great classes—the cicatricial and the carcinomatous—and arrives at the following conclusions:

1. As to the cicatricial strictures: He believes gastrostomy to be a dangerous remedy, which should only be employed in the last extremity, by which he does not mean that we should wait until the patient is dying from inanition, but that we should at first employ all other means, especially dilatation. It is necessary, in his opinion, to use sounds of a special form (which he figures), passing, in the first place, the very finest bougies, which enter

freely into the stricture, and which sufficiently dilate it to enable the patient to swallow liquids. After this all urgency is passed, and we can take the time required to accomplish a complete cure, and without risking the life of the patient.

2. As to gastrostomy in cancerous contractions of the œsophagus, the mortality is enormous (72 in 100 at least) and the average life of those who survive the operation is hardly more than two months, or three months at the most. It seems, therefore, that even in carcinomatous cases continuous dilatation should be attempted. Gastrostomy is only justified by the impossibility of introducing nourishing drinks, and in those patients who, having retained their strength and reason, suffer from the fear of death by starvation. In cicatricial contractions dilatation in the manner which has been indicated should be tried with all the more energy and perseverance, because even after gastrostomy it is necessary to return to the use of the sound in order to dilate the œsophagus. In either class of cases Professor Le Fort refuses to consider gastrostomy as the routine treatment of contractions of the œsophagus.

The Surgical Treatment of Hepatic Abscess.

Mr. Rickman J. Godlee summarizes (*The British Medical Journal*, January 11, 18, 25, 1890) as follows the essential part of his views on the treatment of hepatic abscess, recently published in some extremely valuable lectures which embrace the whole subject, and embody the latest and most authoritative opinions as to its surgical aspect:

1. Pyæmic abscesses do not call for surgical interference, or, if in rare cases one should point, it is only opened to relieve symptoms, but without hope of doing permanent good.

2. The same observations apply to abscesses resulting from suppurative phlebitis of the portal vein.

3. Multiple abscesses associated with dysentery or ulceration of the bowels are very unfavorable for surgical treatment. They must, however, be opened and treated on the same lines as the single or tropical abscesses, because they cannot be certainly diagnosed.

4. Single abscess of the liver, whether tropical or not, must, if it approach the surface, be opened, the following precautions being adopted:

(*a*) If it present at the epigastrium, the presence of adhesions must be ascertained before incising the liver.

(*b*) If through the chest-wall, a spot must be chosen below the normal limit of the pleura; but if by chance either pleura or peritoneum be opened, the opening must be closed with a double row of stitches before incising the liver.

(*c*) Strict antiseptic precautions must be throughout adopted, either carbolic acid or some slightly soluble salt of mercury being employed for the dressing.

(*d*) The tube must be of large size at first, and a tube of some sort must be kept in until the discharge is reduced to a very minute quantity.

If the abscess have burst into the lung, pleura, pericardium, peritoneum, or kidney, and the position of the abscess can be clearly determined, it must

be opened without delay. If the position of an abscess be only suspected and the patient be losing ground, it is right to puncture the liver in the most likely situation, bearing in mind that, although usually quite harmless, a slight amount of risk accompanies this very trivial operation.

This rule applies to cases in which the abscess has ruptured into any of the cavities enumerated above. If, on the other hand, whether the abscess has ruptured or not, there are no means of diagnosing the whereabouts of the matter, and the patient is not losing or is even gaining ground, the surgeon should hold his hand for a time.

5. Hydatids of the upper and back part of the liver are to be treated upon the same lines; but in cases of this sort, and in those of subdiaphragmatic abscess, it must be remembered that the diaphragm may be pushed up to a very great height, thus closely simulating intrapleural suppuration.

6. Empyema, pericarditis, and peritonitis caused by rupture of an hepatic abscess or hydatid must be promptly dealt with on general principles.

Immediate Suture of the Kidney after Nephro-lithotomy.

M. Le Dentu reports a case in which he removed a renal calculus from a patient who had suffered for fifteen years—having concluded that the calculus was seated in the pelvis of the kidney, although there were no symptoms of suppurative pyelo-nephritis. Some time before, he had removed in the same way a renal calculus which did not present any trace of suppuration, and attempted to obtain primary union of the renal substance, but without success. Nevertheless, he repeated the attempt in the second case. After cutting the inferior half of the convex edge and extracting the calculus, he put in seven stitches of catgut. The renal tissue was so friable that it was not possible to draw these threads very tight, but those that were put in were sufficient to arrest capillary hemorrhage. The result was excellent: not a drop of urine escaped from the wound. By way of precaution, a drain was left in until the fifteenth day. In spite of this success, he does not believe, however, that primary union is easy to obtain after nephro-lithotomy.

Surgical Treatment of Tubercular Peritonitis.

Ceccherelli reports (*Centralblatt für Chirurgie*, No. 39, 1889) four cases of tubercular peritonitis treated with incision and irrigation. He divides such cases into two groups:

1. A dry inflammatory process, in which surgical interference is useless, since it is impossible to separate all adhesions; and, therefore, the whole peritoneal cavity cannot be cleansed.

2. Peritonitis with ascites, in which incision is indicated, especially in sacculated peritonitis.

In free effusion, paracentesis, followed by moderate irrigation, is often sufficient.

The Surgical Treatment of Perityphlitis.

At the last French Surgical Congress (*Archives Générales de Médecine*, Nov. 1889), M. Roux, of Lausanne, stated his opinion that there is too great a

tendency to abstain from all active treatment in suppurative perityphlitis, from the incorrect belief that spontaneous cure is the rule. There are, on the contrary, a great number of accidents and relapses, without speaking of the frequent cases of fatal peritonitis, which can be avoided by surgical interference at the proper time. In a series of twenty-one perityphlitic abscesses treated medically, M. Roux has had six imperfect cures, with fistulas and repeated abscesses, and nine cases of peritonitis of which eight terminated fatally. He does not claim that it is necessary to operate in all cases of perityphlitis, but that it is better not to continue too long the expectant treatment. As soon as there is pus, it is well to evacuate it. One can be assured that the pericæcal inflammation is suppurative, when by palpation and percussion an evident infiltration of the superior part of the cæcum and of the ascending colon is found, the intestine being empty. Abscess once diagnosticated, M. Roux does not advise, in order to discover the focus of suppuration, the exploratory incision of Sonnenburg, nor exploratory punctures, which frequently give negative results, and are not without danger. M. Roux makes a very large incision, similar to that for the ligature of the external iliac, separates the fascia transversalis, and carries his finger behind the cæcum, where ordinarily the pus is collected. Even if an error in diagnosis is made, such error is only possible in cases which practically demand the same treatment as perityphlitis, and no additional risk is run. If the purulent focus is not found, it will empty itself spontaneously, more easily toward the exterior than into the cavity of the peritoneum, owing to the presence of the wound.

Disease of the Vermiform Appendix.

Dr. Charles McBurney (*The New York Medical Journal*, December 21, 1889), in a valuable paper on the above subject, reviews the general clinical history of cases of appendicitis, and lays especial stress on the important aid to diagnosis to be derived from a symptom which he has frequently observed, namely, the ascertaining, by the pressure of a single finger-tip, that the point of greatest tenderness is, in the average adult, almost exactly two inches from the anterior iliac spine, on a line drawn from this process through the umbilicus. Much greater tenderness at this point than at others, taken in connection with the history of the case and other well-known signs, he looks upon as almost pathognomonic of appendicitis. This point indicates the situation of the base of the appendix, where it arises from the cæcum, but does not by any means demonstrate, as one might conclude, that the chief point of disease is there. The abscess, or concretion, or cyst, may be at quite a little distance, but the greatest pain, on pressure with one finger, will be felt at the point described. The incision should be a liberal one, for much room may be required, and a five-inch cut in the adult is not too much. It should follow as nearly as possible the right edge of the rectus muscle, and the centre of the incision should lie opposite to or a little below the anterior iliac spine, on a line drawn to the umbilicus. When the external oblique aponeurosis is cut through by this incision, the aponeurotic structure, in which the other abdominal muscles end, comes into view, and is easily divided without cutting muscular fibre. Then the fascia transversalis, the subperitoneal fat, and the peritoneum are cut in succession. If pus has

formed close against the anterior abdominal wall, these last-mentioned will be found infiltrated with serum, and even thickened so as to look like cheesy tubercle. Otherwise these parts may appear perfectly normal. On opening the peritoneum the appendix may at once be seen, or adhesions and inflammatory exudations may have so distorted the parts that a careful and difficult search may be required to find the appendix at all. It may be flattened out and glued firmly to the inflamed surface of the cæcum by old and recent adhesions, or it may be coiled upon itself and buried out of view in a mass of lymph. The finger is often quicker than the eye to detect the appendix in these conditions, as it is very certain to be found where the greatest thickening, as felt by the finger, exists.

Osteoplastic Exarticulation of the Foot.

Dr. W. Rasumowsky (*Archiv für klinische Chirurgie*, vol. xxxix., 1889) discusses the various operations on the foot (Pirogoff, Wladimiroff, Mikulicz, Tauber, Malgaigne), and reports a modification of his own, which he has employed in one case, and which he thinks justifies the following conclusions:

1. In children it is possible to perform an osteoplastic foot operation without the removal of the lower epiphysis of the tibia—that is to say, amputation of the leg can often be replaced by osteplastic exarticulation of the foot, a procedure which possesses unmistakable advantages.

2. When the cutaneous covering of the heel is intact—*i. e.*, in cases which in adults would indicate Pirogoff's operation, in children, according to the method of Rasumowsky, the posterior portion of the os calcis may be thrust into the inter-malleolar niche. Similar modifications may be made according to the region and amount of uninjured skin which remains. The details are described with great fulness.

Treatment of Aneurisms of the Extremities.

The discussion at the French Surgical Congress on the question of operative interference in cases of aneurism embraced certain facts brought forward by M. Kirmisson (*Archives Générales de Médecine*, November, 1889). Of three spontaneous aneurisms related by this surgeon, one only was cured by digital compression after a painful attempt to use an elastic bandage; in the two other cases, compression having failed, it was necessary to have recourse to the ligature.

M. Vaslin had had the same experience, and advocated in aneurisms of the inferior extremity the application of an aseptic ligature at a distance from the tumor.

M. Trélat, who employs only the operative method, declared himself in favor of the direct extirpation of the sac, rejecting the aseptic ligature upheld by Lister, Boeckel, Lucas-Championnière, and Verneuil. The advantage of cutting out the sac is to avoid subsequent accidents—that is to say, inflammation of the sac, producing circulatory and nervous disorders. Arteriovenous aneurisms must be treated at the earliest possible moment; if the sac is small, ligate the arteries and veins; if the sac is bulky, extirpate it.

M. Reclus rejected all of the milder measures, not alone because cure is only obtained in about one-half the cases, but also because these procedures

are extremely painful, and, above all, because operative methods applied later are liable to be followed by grave accidents, which are due to the irritation excited by the earlier attempts.

M. VERNEUIL, who was formerly an advocate of the "mild" treatment, avoids surgical interference in old people in cases of aneurism of the trunk. With this exception, he adopts the operative method, preferring the ligature to extirpation, often a most difficult operation.

M. PEYROT reported an interesting case of popliteal aneurism, the removal of which was very long and difficult. He believes that while there are cases suitable for ligature, and others which indicate extirpation, that the latter process will become the chosen one.

M. PÉAN (*Revue de Chirurgie*, November, 1889) calls attention to the fact that in nearly all aneurisms of the extremities operation is clearly indicated, as they are very accessible and differ only according to the importance of the artery involved, popliteal and femoral aneurisms being the most interesting surgically. Their cure can be accomplished not only by arresting the blood current by ligature, but also, and preferably, according to M. Péan, by occlusion of the artery by means of forceps. If the aneurism is small and circumscribed, one need not hesitate to open the sac and to empty it, compressing both the superior and the inferior ends of the artery. The forceps are allowed to remain for forty-eight hours, after which they are removed and the wound is closed. For the femoro-popliteal aneurisms the same method could be used, but experience has demonstrated that immediate union is difficult to obtain, and that secondary hemorrhage may result. In these conditions it is preferable to look for the artery above and below the sac, and to place forceps at each of these two points. Pressure has a great advantage over the ligature, in not necessitating the denudation of the arteries and in not permitting foreign bodies to be an obstacle to union by first intention.

NERVE SUTURES.

E. ETZOLD records (*Deutsche Zeitschrift für Chirurgie*, Bd. 29, Hefte 5 und 6, 1889) a number of cases occurring at the Dorpat clinic, in which various nerves, chiefly the ulnar, radial, median, and musculo-cutaneus, were sutured at different intervals after their division, and on the whole with great success. After considering the general subject, he arrives at the following conclusions:

Nerves do not unite by either primary adhesion or second intention. The axis-cylinders are the extension of the cells of the ganglia, and their re-formation or their union by means of an exudation of cellular elements of mesodermal origin is, for anatomical reasons, not to be expected.

Divided nerves are regenerated by means of a proliferation from the proximal stump. This was established by experiments upon animals, and has been confirmed by clinical observation, which shows beyond all doubt that the proximal end of a divided nerve is regenerated earlier and more completely than the distal end.

The return of sensibility is of no value in the diagnosis of nerve regeneration.

The symptoms indicating its occurrence are, *a*, active muscle contraction; *b*, disappearance of atrophy, especially of muscular atrophies; *c*, the slow appearance of this improvement; *d*, the return of faradic excitability in

muscles previously paralyzed. The galvanic current is not of much importance in the diagnosis of nerve regeneration.

Spontaneous union of divided nerves in the extremities is very rare. In high injuries of nerves the prognosis is unfavorable in spite of nerve sutures.

Regeneration of nerves is prevented by the extensive formation of cicatricial tissue.

Nerve suturing is not only a justifiable operation, but in every traumatic case of nerve section it is the duty of the surgeon to adopt it.

The essentials of success are: absolute antisepsis, complete hæmostasis, avoidance of irritation. If, after nerve injuries, a congested condition of the limb results, it should be elevated, and massage employed as soon as the wound is healed. Direct galvanization of the nerve scar should be employed, as well as massage soon after cicatrization in order to diminish the scar.

It is not proven that electric treatment of the organs supplied by the cut nerves either limits the atrophy or favors the nerve regeneration.

Massage and passive gymnastics constitute the rational treatment for peripheral paralyses.

The most extensive use of the extremity that is found possible after nerve section, appears to have a favorable influence upon the healing.

Acute Mercurial Poisoning.

Kaposi (*Centralblatt für Chirurgie*, December 18, 1889) reports the case of a vigorous woman forty years old, who on account of a maculo-papular syphiloderm had taken, by hypodermic injection within seven weeks, a considerable quantity of "oleum cinereum," which resulted in the appearance of an acute stomatitis, followed by dysentery and death six weeks later.

The autopsy showed the well-known signs of mercurial poisoning. The chemical analysis of the tissues of the last place of injection showed that scarcely a third of the amount deposited there had been absorbed. This fact made the case still more noteworthy, as usually gray oil is exceedingly well tolerated.

In four other cases Kaposi found a greater or less degree of acute stomatitis after similar injections, and in one case there was coexistent albuminuria.

OTOLOGY.

UNDER THE CHARGE OF

CHARLES H. BURNETT, M.D.,
AURAL SURGEON, PRESBYTERIAN HOSPITAL, ETC., PHILADELPHIA.

Creolin in Aural Therapeutics.

In the report of the work in the ear clinic at Göttingen, Bürkner communicates the experience with creolin (*Archiv für Ohrenheilkunde*, vol. xxviii., Part 4, October, 1889). Preference has been given to Pearson's creolin, which

experiment has shown to be the most efficient. It has been used in the strength of six to eight drops to the pint of water, for syringing the ear, but the results, while good, have not been equal to those described by Vitelberg, Lichtwitz, and others. In some cases bitter complaints have been made of the taste and smell of the drug. It doubtless possesses antiseptic power, but in the above-named solutions the effect cannot be very great, and stronger ones cannot be borne in the ear. The opacity of the watery solution is also an objection to its use, as the appearance of the secretions, etc., washed from the ear cannot be easily seen. A tarry deposit is sooner or later formed in syringes in which creolin is used.

It must, however, be admitted that many cases of chronic purulent discharge from the middle ear heal much more quickly under syringing with creolin than with any other means, owing to the property of creolin to diminish secretion. In chronic eczema a cure is sometimes apparently effected more quickly under the use of creolin than of either a solution of boric or carbolic acid. On the whole, however, Bürkner believes the objections to the use of creolin in aural surgery are graver than the advantages to be derived.

Herba Sabina and Alum in Aural Therapeutics.

The same writer (*loc. cit.*) also gives his experience with the mixture of equal parts of herba sabina and burnt alum, which has been used by Lucae in carcinoma of the auditory canal, with good results (*Therapeutische Monatshefte*, No. 11, 1887). Bürkner has used this powder in the after-treatment of polypi, with good results, but he states that it cannot take the place of nitrate of silver in such cases. When time is wanting for the application of lunar caustic, the above-named powder may be substituted.

Trephining the Mastoid Process.

Küster, at the Berlin Medical Society (*Archiv für Ohrenheilkunde*, vol. xxviii. pp. 286–296, October, 1889), read a paper on the fundamental laws of the treatment of suppuration in hard-walled cavities. He maintained that the frequent fatal termination of suppuration of the middle ear could with certainty be warded off only by a timely opening in the mastoid and exposure of the suppurating cavities. He considers, however, that the method of treatment set forth by Schwartze, and in the main followed by aurists of to-day, is not surgically satisfactory. Recovery is often very slow, requiring eight to ten months, sometimes longer, with intercurrent symptoms in some cases, which endanger life, and ensue just as though nothing had been done to the mastoid for relief and prevention.

Küster's experience varies as the primary affection is in the mastoid or in the drum cavity. In the first instance the opening in the mastoid is made a large one, and the middle ear suppuration ceases as soon as the source of the disease in the mastoid is removed. Long-continued syringing will now do more harm than good, as it may work purulent matter into the middle ear and endanger the contents of the cranial cavity.

In primary suppuration in the drum-cavity, Küster advises the removal of the posterior wall of the osseous auditory canal, in order to obtain perfect

drainage from the antrum and the drum-cavity. This is to be formed by a drainage-tube running from the tympanic cavity to the orifice of the external canal. This is similar to the method proposed twelve years ago by C. Wolff, of Herzfeld.

In some primary affections of the mastoid the middle ear may not participate, or, if so, only to a slight extent. These are: 1, tuberculous ostitis of the mastoid; 2, acute infectious osteomyelitis of the mastoid; 3, a part of the so-called cholesteatomata, or pearly tumors—subdivided into (*a*) thickenings and collections of epithelium on the drum-membrane and other parts of the drum-cavity; (*b*) the rare "congenital dermoid growths" of the inner ear and its environs; (*c*) the true pearly tumors. Küster regards the latter as "primary congenital tumors of the bone surrounding the drum-cavity." (Note by Dr. L. Jacobson, of Berlin.)

Pearly Tumor of the Temporal Bone.

Virchow (*Ibid.*) admits with Küster the possibility that pearly tumors in the middle ear are connected with an early disturbance in the development of the branchial cleft, but does not admit that they are analogues of the sebaceous tumors occurring in the neck. He has never yet found a pearly tumor in the neck. On the other hand, there is in the neighborhood of the middle ear, another locality relatively often the seat of similar formations, viz., the pia mater cerebralis. It is remarkable that that part of it nearest the petrous bone, and connected with it by means of the acoustic nerve, near the medulla oblongata and the pons, is the part most likely to be thus affected.

In conclusion, Prof. Virchow drew attention to the fact, that nearly one-third of the fatal cases of suppuration of the middle ear are attributable to cholesteatoma, and therefore they should be completely removed as soon as discovered.

Diagnosis and Treatment of Obstructions of the Eustachian Tube.

Dr. de Mendoza, of Angers (*Annales des Maladies de l'Oreille*, November, 1889) contributes a very practical paper on the use of bougies in narrowing and strictures of the Eustachian tube. These are divisible into two classes—viz.: 1, permanent or temporary catarrhal obstructions, and, 2, organized or true strictures. The former are usually connected with catarrhal inflammations of the throat and naso-pharynx, and often recover with these affections without special treatment. In the second class of cases the strictures are often due to secondary inflammation of the Eustachian tube, in scrofulous, rheumatic, or gouty subjects. Here are found true organic strictures, usually seated at the isthmus. Their occurrence is more frequent than is supposed, according to the author. The only true way of diagnosing them is by means of whalebone bougies with olive-shaped tips. The normal Eustachian tube permits a passage at the isthmus of a bougie from 1.2 mm. to 1.5 mm. in diameter. In cases of stricture the isthmus is impassable by bougies of this diameter. The bougies employed for this purpose are carefully marked, so as to know how far the instrument projects beyond the catheter's mouth.

Trephining the Temporal Bone in Thrombosis of the Transverse Sinus.

Orlow describes the case of a woman, twenty-seven years old, with chronic purulent otitis media, who had suffered finally with intense pain in her ear for three weeks, attended with swelling of the mastoid region and fever (*Deutsche med. Wochenschr.*, No. 10, 1889). Temporary relief followed an operation and the escape of pus from the mastoid cavity, and the "accidental" opening of an abscess between the dividing wall and the dura mater. It is maintained by Schwartze (*Archiv. f. Ohrenheilkunde*, Bd. xxviii. p. 310, October, 1889) there is no evidence that there was in this case any broken-down thrombus in the transverse sinus.

Cases of Operative Treatment of Caries of the Temporal Bone.

This paper is written by Dr. L. Jacoby, of Breslau, upon his experiences with the results of chronic suppuration of the middle ear in twenty cases.

1. The first case was one of otorrhœa in the left ear, of several years' standing, attended with cholesteatoma of the tympanic cavity and a fistulous opening through the mastoid. This was permanently healed after three years of treatment, the first step being an enlargement of the fistulous canal in the mastoid, and a thorough removal of the cheesy pus and cholesteatoma from the middle ear, and scraping away all softened bone. This was followed by daily syringing the diseased tract with salt water and solutions of carbolic acid for nearly two years, until the ear had ceased to secrete pus. In the course of another year the patient's ear was entirely healed, and free from all purulent disease.

2. In the second case we find a chronic otorrhœa attended with central caries in the mastoid process and left tympanic cavity, with implication of the labyrinth. Death ensued from pyæmia and abscess of the brain. The operation of enlarging a fistulous opening in the mastoid gave no relief.

3. On the right side empyema, on the left central caries of the mastoid process and of the tympanic cavity, after acute otitis media. Opening of the mastoid cells was followed by cure in three or four months.

4. Acute otitis media, with secondary empyema of the mastoid process: opening by chiselling off layers of bone; cured in two and a half months. Permanent facial paralysis.

5. Empyema of the mastoid cavity resulting from the injudicious insufflation of some kind of powder into the ear when acutely inflamed. Opening in the mastoid by chiselling, as in previous cases, followed in two months by entire relief from purulent disease in the ear.

6. Acute inflammation of the middle ear, with secondary subperiosteal abscess, fistulous opening, and empyema in the mastoid after insufflation of iodoform in the ear while acutely inflamed. Chiselling followed by cure in six weeks.

7. Acute otitis media with secondary empyema of the mastoid process. Chiselling an opening followed by cure in two months.

8. Caries of the left mastoid process and tympanic cavity with fistula in the

cortex, following acute inflammation of the middle ear. Healed in four months.

9. Otorrhœa with central caries of the left mastoid. Chiselled opening, and cure in about two and a half months.

10. Acute suppuration of both ears, complicated on the left side with caries of the mastoid process. Nephritis and general anasarca. Chiselling, and cure in two months.

11. This case was one of acute inflammation of the middle ear, right side, complicated by empyema of the mastoid antrum. An opening was chiselled in the mastoid, and healing ensued in two months.

12. Very chronic, fetid otorrhœa with fistulous communication between the mastoid antrum and the external auditory canal, and central caries and cholesteatoma in the mastoid process. An opening was chiselled in the mastoid; septicæmia followed, but recovery ensued finally in a year.

13. Empyema of the mastoid antrum following acute inflammation of the middle ear. An opening was made in the mastoid by means of the chisel, and recovery ensued in four months.

14. Periostitis and empyema of the mastoid process connected with acute inflammation of the middle ear. Two months after all mastoid symptoms had subsided, new symptoms of pain and tenderness in the mastoid were experienced. A fistulous opening was discovered about one centimetre above and behind the porus acusticus externus. This was enlarged, and the mastoid cavity cleansed with a one per cent. solution of carbolic acid, and the wound dressed with iodoform gauze. Recovery ensued in six months with perfect hearing.

15. Empyema of the mastoid antrum, consequent upon acute otitis media. An opening was made in the mastoid with the chisel, and a cure occurred in two months.

16. Chronic otorrhœa in connection with central caries and cholesteatoma of the mastoid process and the petrous bone. Repeated chiselling operations were followed by severe cerebral symptoms, but finally recovery took place in the course of a year.

17. Chronic otorrhœa attended with central caries in the mastoid, the tympanic cavity, and possibly the labyrinth. Improved by repeated operations.

18. Fetid otorrhœa of ten years' duration, with caries of the tympanic cavity and the mastoid; also cholesteatoma of the petrous bone. Death from meningitis.

19. Chronic otorrhœa in both ears, with central caries of both mastoid processes, complicated with ozæna, and on the left side with labyrinth disease. Chisel operation on both mastoids; bone lesions healed in four months and a half. The ozæna improved.

20. Chronic suppuration of both middle ears, after scarlet fever, with central caries, necrosis of the tympanic cavity, the mastoid process, and the labyrinth, with absolute deafness for speech. The bone disease on the left side healed by operation and removal of large sequestrum. — *Archiv für Ohrenheilkunde*, vol. xxviii., October and December, 1889.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

J. SOLIS-COHEN, M.D.,

OF PHILADELPHIA.

On the Localization of Phlegmonous Angina.

This subject has been carefully studied by Dr. O. Chiari, whose observations (*Wiener klin. Woch.*, October 24, 1889), based upon descriptions by a number of writers and supplemented by critical investigations in a series of personal cases, merit, in the clinical importance of the subject, a fuller abstract than is usually presented in these pages.

The disease is usually unilateral and limited to the region of the tonsil and soft palate, never extending to the pharynx. It usually attacks adults of middle age. In most instances it progresses to suppuration. It may present as a primary disease, or may occur secondarily, especially in scarlatina.

The tonsil is strongly pushed inward, often beyond the middle line; sometimes by interstitial tumefaction, but more frequently by inflammatory infiltration external to the organ. In instances of the latter character the anterior palatine fold is pushed strongly forward, and is markedly congested. The uvula is often œdematous, and sometimes both palatine folds also. The submaxillary glands are usually tumefied and painful. In many instances there is a swelling externally along the anterior border of the sterno-mastoid muscle. These manifestations are produced in a few days, and may then slowly subside. More frequently, however, suppuration ensues, which is announced by severe beating pains extending to the ear, by œdematous tumefaction of the uvula and palatine folds, and often by a more circumscribed projection in the tonsil, or, more frequently, in the anterior palatine fold. Pain alone may be present on the one hand; and œdematous swelling may occur without suppuration on the other. Usually fluctuation may be detected by careful palpation with counter-pressure externally; but sometimes this symptom cannot be elicited by any device, even though suppuration has taken place.

The normal softness of the velum may be erroneously regarded as a sign of fluctuation. Doubts as to suppuration are frequently present if there be no distinct, circumscribed, often yellowish prominence, indicating its location. Several days are required to reach this condition, during which period the patient can hardly eat or sleep, and is plagued with severe pains, not to mention that his very life may become endangered by œdema of the larynx, or by erosion of bloodvessels. Early incision is requisite, therefore, in the region where suppuration usually takes place. This region is not difficult to locate. It is external to the tonsil and above, and the pus ruptures anteriorly. This is the pharyngo-maxillary space or cavity described by Linhart in 1849, and which, according to more recent researches by O. Zuckerkandl (*Wien.*

med. Jahrb., 1887, p. 309), is composed of an anterior and a posterior chamber in communication by a fissure between the borders of the styloglossus and stylopharyngeus muscles, which separate them. The external and internal carotid arteries course through the posterior chamber. It is in the anterior chamber, however, that the phlegmonous process takes place. Hence, as a rule, there will be no risk of injuring these vessels in opening an abscess. On the other hand, however, it is apparent that in those exceptional instances in which the inflammatory process extends into the posterior chamber, or commences there, ulceration of the walls of the bloodvessels is liable to take place.

[We may be permitted to remark that Chiari makes no allusion to certain important anatomical relations of the stylopharyngeus muscle, long since described by Santorini, and expressly referred to by Luschka, though apparently ignored by anatomists generally. This muscle has far greater attachment to the larynx than it has to the pharynx, and is therefore more of a laryngeal muscle than a pharyngeal one. The muscle is not only attached in great measure to the thyroid cartilage, but likewise to the sides of the epiglottis, and in some instances some of its fibres are continuous into the oblique fibres of the arytenoid muscle. Recognition of these relations renders it easy to account for œdema of the epiglottis and œdema of the larynx in the disease under consideration.—ED.]

The practical points of Chiari's observations are summed up as follows:

1. Angina phlegmonosa is seldom located in the tonsil, and when so located usually produces small abscesses which rupture spontaneously on the surface of the tonsil, or are easily opened.

2. The inflammatory process is usually located externally to the tonsil and above it, pushing the tonsil onward and downward, while the anterior palatine fold is strongly projected forward into the mouth.

3. The suppuration is usually recognizable by accompanying œdema of the uvula and of the palatine fold, by severe lancinating pains radiating to the ear, and by fluctuation. All these indications may be deceptive, however. In doubtful cases an exploratory puncture two centimetres in depth should be made directly backward in the centre of the anterior palatine fold.

4. If there be evidence of pus, an incision should be made with a tenotome or a protected bistoury in the middle of a line drawn from the uvula to the crown of the upper wisdom tooth; unless a yellowish projection or another circumscribed fluctuating point should present elsewhere. The incision should be directed straight backward, parallel to the border of the anterior palatine fold, and may be carried from one to two centimetres in depth without danger. If pus escapes by the opening, the incision should be enlarged downward as the knife is withdrawn.

5. Should no pus appear and the swelling be very great, the incision should be made in the same manner, to relieve tension.

6. In exceptional cases the pus may rupture in an unusual position. It is therefore necessary to make careful inspection of the mouth, pharynx, and rhino-pharyngeal space as far as practicable; for in many instances the location of the abscess can be detected.

[We would mention in this connection that a variety of this disease which does not progress to suppuration, as a rule, but which usually undergoes

arrest while the infiltration remains plastic, has been quite prevalent in the United States of late years, sometimes presenting endemically. The superficial tissues appear œdematous or myxœdematous. Incision fails to discharge serum, but sometimes gives exit to stringy strands of viscid products, much like mucus. In some cases the epithelium becomes discolored and partially detached on some portions of the mucous membrane, so that the parts present a quasi-diphtheritic aspect, which brings those examples into the category of pellicular sore-throats. The disease subsides spontaneously by resolution; recession usually ensuing within five or six days in most instances.—ED.]

STRICTURE OF THE LARYNX.

An instance of complete cicatricial occlusion of the larynx is reported from Schrötter's klinik by DR. GEORG JUFFINGER (*Wien. klin. Woch.*, October 31, 1889). Hoarseness without known cause had existed two years and a half in a man twenty-five years of age. This was followed by dyspnœa eventually requiring tracheotomy. Six weeks after the operation all communication was shut off between air-passage and pharynx. Attempts at dilatation failed. Division of the larynx and removal of the obstructing tissues were only temporarily serviceable. Schrötter found complete occlusion of the larynx. The arytenoid cartilages were closely adherent, and the ventricular bands were thickened and in contact. After repeated failures to find a pasage either by way of the mouth or by way of the trachea, Schrötter passed a harpoon-lance between the ventricular bands and through the cicatricial tissue into the trachea. A thin thread was then thrown around this instrument in the tracheal wound, and drawn up through the mouth, when its two extremities were tied together. The next day a thicker thread was tied to the tracheal end of the first one and drawn through in its turn. Subsequently larger threads, then catgut, and eventually a leaden wire of considerable size were drawn through. This was followed by the graduated dilating prisms until on the fortieth day Schrötter's No. 20 could be introduced. At this time a small granulation tumor was detected in the glottis and removed with the electro-caustic snare. Dilatation was continued as before, and eventually confided to the patient, who became enabled to work and to sleep with his canula closed. It is hoped that eventually the canula can be removed.

ŒDEMA OF THE LARYNX.

DR. FELIX PELTESOHN examined the records of the autopsies made under charge of Prof. Virchow between 1873 and 1878 (*Berliner klinische Wochenschrift*, November 4, 1889) with the following results:

In 3887 examinations, œdema of the larynx was noted 210 times: 149 in men, 40 in women, and 21 in children. The majority of men had been between eighteen and sixty years of age; and the majority of women between twenty-one and fifty-four; while 13 of the children had been less than five years of age. 44 cases had occurred in regional disease, and 166 in systemic disease. These diseases are tabulated.

Of 5161 patients treated in the clinic for diseases of the throat and the nose between April 1, 1887, and June 1, 1889, there were only 8 with acute œdema

of the larynx; 7 men, between twenty-one and forty-eight years of age, and 1 in a woman fifty-eight years of age. 7 of them occurred in inflammatory regional disease; the etiology could not be determined in the eighth case. Systemic disease could not be recognized in any of the cases.

Tuberculous Ulcer of the Larynx, and the Method of Infection with the Bacilli.

A. P. Korkunoff (*Deutsch. Archiv. f. klin. Med.*, 1889, 45, Bd. I., H. 2), after presenting a summary of the views held by various investigators, gives the results of his own careful series of microscopic studies undertaken at the suggestion of von Ziemssen. These show that in the immense majority of instances the bacilli found in the larynx are carried from pulmonic foci by the blood- and lymph-vessels, into previously dilated subepithelial lymph-spaces of the mucous membrane of the larynx; and that they penetrate the epithelium from without only in some of those exceptional cases in which, from other causes, some solution of continuity has occurred, affording access to the bacilli of sputa which have been expectorated from the bronchi and become lodged upon the diseased portions of the mucous membrane.

External Operations in Tuberculosis of the Larynx.

Dr. Betz, of Mainz, discusses (*Therap. Monatshefte*, November, 1889) the indications for surgical interference in tuberculosis of the larynx, and especially with reference to laryngectomy. He refers to the opinion expressed by E. Fränkel and by Massei that this radical procedure should be practised in cases of primary tuberculosis; and he cites an instance reported by Hopmann in 1887, in which the patient's sufferings were wonderfully relieved to the date of death, some three months later as a result of progress in the pulmonary lesions. He then reports a case in which he regrets he did not practise timely extirpation, as the progress of the disease and the post-mortem investigation rendered it probable that such a course would have been preferable to the tracheotomy and symptomatic treatment which had been pursued. While Betz is far from believing that such cases as the one in question are frequently observed, he asserts that the fact that they do occur does not justify absolute abstention from laryngectomy in their treatment.

Foreign Body Removed from the Œsophagus under Electric Illumination.

Dr. von Hacker reports (*Wiener klin. Woch.*, October 31, 1889) a case from Schrötter's clinic in which he was enabled with the panelectroscope to see a large irregular fragment of hog-bone impacted in the œsophagus of a woman, eight inches from the incisor teeth, or just above the region of the tracheal bifurcation. The tube slid past the body, having probably pushed a circular fold of the mucous membrane before it. The bone was extracted with some difficulty owing to its impaction, the forceps having slipped from it twice. On the third attempt the two ends of the bone were detached by appropriate screwing motions, and then the bone was readily removed with

the tube. There was no blood lost in the manipulation, although previous attempts, a few hours earlier, to remove the body with the coin-catcher had produced considerable hemorrhage.

There is no doubt that the use of the œsophagoscope is of great value in avoiding injury to the walls of the œsophagus in the extraction of irregular foreign bodies, inasmuch as the position of the body can be detected, and the manipulation be controlled under inspection.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

PROFESSOR OF DERMATOLOGY IN THE UNIVERSITY OF PENNSYLVANIA,

AND

HENRY W. STELWAGON, M.D.,

PHYSICIAN TO THE PHILADELPHIA DISPENSARY FOR SKIN DISEASES.

Histology of Lupus Erythematosus.

Miethke (*Monatshefte für praktische Dermatologie*, Bd. ix. No. 8) examined pieces of affected skin taken from the back of the hand, neck, chin, and alæ of the nose, excised from points where the diseased and healthy skin met. The disease is found to have its starting-point in the connective tissue, with perivascular infiltration in the papillary bodies; later, the rest of the corium is invaded, with a certain preference for the environment of the sebaceous glands, notwithstanding that these structures are not rich in vessels. The process pursues, in a relatively rapid manner, a course of infiltration and destruction, as proved clinically and anatomically by the scars. With the beginning of the infiltration in the corium there is associated a pathological process in the epidermis, consisting of hyperplasia of all the layers and paratypical cornification.

Pseudo-leukæmia Cutis.

Max Joseph (*Deutsche med. Wochenschrift*, November 14, 1889), under the above heading, first refers to the subject of leukæmia cutis as portrayed by the three cases of Biesiadecki, Kaposi, and Hochsinger and Schiff, reference being also made to the recent case of Besnier and Vidal designated as "lymphodermia perniciosa (Kaposi);" and then states that in internal medicine distinction is made between true leukæmia and another form, having some symptoms like and others unlike leukæmia, called by Cohnheim pseudo-leukæmia, and by others anæmia lymphatica resp. lienalis, or Hodgkin's disease.

The question whether a specific disease of the skin can show itself with

this general disease is answered in the affirmative by the report of a case. The patient was a man, aged sixty-six, who had the affection for two years. He was poorly nourished, with a pale skin, and manifested enormously enlarged lymphatic glands in the groins, axillæ, and neck. Upon the general surface, without special localization, there existed a great many hempseed-sized, pale red papules, covered with unaltered epidermis, and distinctly discernible with the finger. The skin had a hard, grater-like feel, and between the papules was darkly pigmented and much thickened. There was violent itching. The patient shortly afterward died of acute hemorrhagic nephritis.

The author points out the difference between this eruption and that of true prurigo of Hebra, which it resembled more than any other skin disease. The autopsy showed leukæmia lymphatica et lienalis, with lymphomatous tumors of the neck, groins, etc., and of the liver. During life an examination of the blood showed slight decrease in the red corpuscles, but no increase in the white corpuscles. Three other cases of pseudo-leukæmia reported by E. Wagner as lymphatic anæmia likewise showed the same eruption, which was regarded by Wagner as a form of prurigo.

An Unusual Form of Pustulo-ulcerative Disease of the Skin.

Bronson describes (*Journal of Cutaneous and Genito-urinary Diseases*, November, 1889) a peculiar eruption of a pustulo-ulcerative type, involving, to a greater or less extent, all parts, except the palms, soles, and flexures of the joints. The eruption consisted of papules, tubercles, pustules, and incrusted superficial ulcerations, the ulcers varying in size from a few lines to a half inch in diameter, and numerous small irregularly-shaped scars. There were also, numerous pigment marks and petechiæ, especially over the back. There was a marked tendency toward irregular grouping and corymbiform arrangement. Apparently the beginning of the lesions was papular, pustular, and in some cases vesicular, occupying the site of a hair-follicle. Added to the cutaneous eruption the face was œdematous and swollen. There were no constitutional symptoms. The disease had begun eighteen months previously. There was a distinct strumous history. Under the use of tonics and antistrumous remedies the patient had gradually improved. In some respects the disease suggested an analogy with dermatitis herpetiformis, but, as a whole, partook more of the nature of modified acne cachecticorum.

Actinomycosis.

Fessler, surgeon to the Munich clinic (*Monatshefte für praktische Dermatologie*, Bd. ix. No. 8), gives the following characteristics of this disease as observed in two cases:

1. The sluggish, obstinate course of the inflammation without fever or special pain. 2. The considerable extension and induration of the inflammatory process. 3. Where the disease has its seat on or in a bone, the latter and the soft parts are found closely adherent by means of thick strands. 4. Usually in the course of weeks or months a circumscribed superficial softening occurs, which discharges itself externally without causing disturbing general

symptoms. 5. The discharge is a scanty, blood-colored serum, eventually showing signs of glandular tissue. 6. Such a softened area cicatrizes quickly, the whole tumor receding somewhat, but growing again in the next few weeks. 7. Extensive destruction seems to set in late.

TILANUS, of the University of Amsterdam (*Monatshefte für praktische Dermatologie*, Bd. ix. No. 8), relates a case occurring in a young girl, otherwise healthy. It began as a swelling upon the right side of the face, at first progressing slowly, and later broke out at several points, which remained open. The right cheek from the eyelid to the neck was much swollen, and covered with elevated red spots, between which were granulating ulcers discharging scanty seropurulent fluid. On the neck a semi-fluctuating tumor could be felt. The mouth could be well opened; the mucous membrane of the cheek was but little or not at all infiltrated, but nearly all the teeth were carious. The diagnosis was established by the microscope. The fistulæ and cavities were scraped, injected with corrosive sublimate solution and antiseptically dressed; after a repetition of the scraping cure took place.

OBSTETRICS.

UNDER THE CHARGE OF

EDWARD P. DAVIS, A.M., M.D.,

PROFESSOR OF OBSTETRICS AND DISEASES OF CHILDREN IN THE PHILADELPHIA POLYCLINIC; VISITING OBSTETRICIAN TO THE PHILADELPHIA HOSPITAL.

THE CAUSES AND CONSEQUENCES OF OLIGOHYDRAMNIOS.

TRUZZI (*Thesis*, Bologne, 1889) has found cases in which the amniotic liquor was reduced to a few drachms of thick, mucilaginous fluid. In cases less marked deficient development of the fœtus and lack of normal muscular activity are observed. It is not at present possible to say whether deficient fœtal development is caused by oligohydramnios, or *vice versa*.

PLACENTA PRÆVIA; DEATH FROM TRUE ANÆMIA.

LOVIOT (*Bulletins de la Société Obstétricale de Paris*, No. 7, 1889) reports a case of placenta centralis in an anæmic multipara, in whom version and extraction with removal of the placenta were done without hemorrhage. Uterine inertia continued, and although no further bleeding occurred, death ensued from exhaustion. Stimulation was unavailing, and symptoms of thrombosis were wanting.

A CASE OF FŒTAL RETENTION DELIVERED BY UTERINE INCISION.

HERRGOTT (*Annales de Gynécologie et d'Obstétrique*, December, 1889) reports the case of a multigravida who ceased to feel fœtal life at six months. The

fœtus was retained without effort at expulsion until crepitation in the abdominal tumor, with fever and vomiting in the mother, showed beginning septic infection. A probable diagnosis of dead fœtus retained by reason of a uterine or pelvic fibroid preventing delivery was made, and laparotomy was done. The macerated fœtus was found in a uterus so thinned and distended as to be simply a cyst, a pelvic tumor rendering spontaneous delivery impossible. The uterus was incised, and the fœtus extracted. It was decided not to suture the uterus, as its muscle had lost all contractile and retractile power; the patient was too weak to endure uterine amputation. Furthermore, the placenta was so firmly adherent that its speedy delivery was impossible without dangerous bleeding. Accordingly, the uterus was left open and stitched to the abdominal wall; its cavity was cleansed with a solution of β-naphtol, tamponed with iodoform gauze and covered by salicylated gauze. The uterus was redressed daily, and irrigated with the following solution:

β-naphtol	gr. 6.
Alcohol	ʒ 2½.
Distilled water	1 quart.

Rubber drainage-tubes were also inserted, and the patient's septic diarrhœa was treated by salicylate of bismuth. The placenta began to come away on the thirteenth day after operation, and was completely discharged on the twenty-fourth day.

Two months after operation cicatrization was complete, the pelvic tumor having greatly lessened in size. The patient made a complete recovery three months after operation.

AN OCCIPITO-POSTERIOR POSITION IN WHICH ROTATION WAS PREVENTED BY A SECONDARY PLACENTA; LABOR COMPLICATED BY MATERNAL GOITRE.

MANTEL (*Annales de Gynécologie et d'Obstétrique*, December, 1889) describes an interesting case of labor in a primipara suffering from congenital hypertrophy of the thyroid gland. As labor advanced, expulsive efforts brought on alarming syncope with turgescence of the goitre, which necessitated the application of the forceps. Anterior rotation of the occiput failed, and the occiput turned into the hollow of the sacrum. Delivery was readily accomplished with Tarnier's small forceps, the perineum being moderately torn. Two joined placentæ were found, one large and full of blood, the other small, compressed, and anæmic. The smaller placenta had prolapsed in front of the head, preventing rotation. The cord (fifteen and a half inches long) was inserted in the point of contact of the two placentæ, two complete systems of vessels being given off to the placentæ, one vein and two arteries to each. The membranes ruptured at the lower border of the principal placenta. Mother and child recovered well.

A CASE OF SPONDYLOLISTHETIC PELVIS.

VON HERFF (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band 17, Heft 2) reports the case of a multipara who gave no history of rhachitis, and had

walked during her first year of life. She gave a history of pulmonary catarrh, and pain in the sacral region. She had given up heavy work, and had led as easy a life as possible. Her first child died in labor and was delivered by craniotomy. When pregnant the second time she was carefully examined, and found to have a spondylolisthetic pelvis. The fœtus lay transversely in the pelvis, and with the consent of the parents labor was induced, combined version performed, and the delivery of a living child effected. It was found impossible to make the head engage transversely during extraction, because of the prominence of the vertebræ at the pelvic brim. The chin was pressed firmly on the chest by pressure from above, and the head so delivered in an oblique diameter of the pelvis.

From the comparative study of this and other pelves, the conclusion is drawn that a spondylolisthetic pelvis is a kyphotic pelvis, with luxation of the body of the last lumbar vertebra.

A case of sacral kyphotic pelvis is also described, in which the deformity consisted of a moderate contraction in the antero-posterior diameter of the brim, widening of the pelvic cavity, and contraction of the outlet. Birth resulted spontaneously.

Two Fatal Cases of Spontaneous Uterine Rupture.

St. Braun (*Przeglad Lekarski*, Nos. 40 and 41, 1889) reports a case of spontaneous uterine rupture and escape of the fœtus into the peritoneal cavity in the second half of pregnancy. Fœtal death and peritoneal abcess followed. Six weeks after pus escaped by the vagina; laparotomy removed the macerated fœtus. The mother died from purulent cystitis and pyelitis.

Also the case of a multipara, in whom a difficult previous labor was followed by cicatricial contraction of the cervix. Incision of the scar tissue and traction with forceps resulted in rupture of the vagina and uterus at their junction. Cæsarean section was made at the moment of death; the child perished. Delay in making the section or uterine amputation was thought largely answerable for the result.

The Cæsarean Section in Holland.

Van der Maij (*Nederl. Tijdschr. voor Verloskunde en Gynœcologie*, Jahrg. 1, Heft 1) reports recent Cæsarean operations in Amsterdam which show a revival of the operation among Dutch surgeons.

His first case was a multipara, in whom birth was impossible because of a pelvic tumor which reduced the antero-posterior diameter of the pelvic brim to 1.9 inches. The Sänger operation was done seven hours after labor began, silk being used for suture material. Recovery followed, complicated by parametritis, caused by septic infection conveyed by a physician who examined the patient after attending a septic case.

His second case was a rhachitic primigravida, who recovered, the child perishing eight weeks after birth.

The third case was amultigravida with flat, rhachitic pelvis, whose previous pregnancies had ended in the death of the fœtus, the pelvic diameters not permitting the birth of a living child. At her own request, she was delivered by Cæsarean section, making, with her child, a good recovery. She became

pregnant again, and returned in eighteen months, requesting a second operation. The incision was carried to the right of the former one, and adhesions between the uterus and abdominal wall were ligated and separated. The elastic ligature was applied about the cervix, and the uterus incised. No trace of a uterine cicatrix from the former incision was discernible. After the extraction of the child and its appendages, profuse hemorrhage occurred, which was controlled by tamponing the uterus with iodoform gauze dipped in a bichloride solution at a temperature of 130° F. The uterus was closed with silk, and, after two injections of ergotin, remained well contracted. The recovery of mother and child followed.

Pregnancy in a Bicornate Uterus Mistaken for Ectopic Pregnancy.

Mundé (*American Journal of Obstetrics*, January, 1890) performed laparotomy on a patient who had a tumor to the right of the uterus, supposed to be an ectopic gestation. Closer examination by the sound revealed pregnancy in the cornu of a bicornate uterus. The amniotic fluid was aspirated, when the outline of the uterus became normal. The uterus was replaced in the abdominal cavity, and, as was intended, the patient aborted that night. Uninterrupted recovery followed.

The Diagnosis and Treatment of Early Ectopic Gestation.

Fränkel (*Berliner Sammlung klinischer Vorträge*, Heft 17, 1889) reports three cases of tubal gestation. In the first rupture of the tube and escape of the ovum into the abdomen was followed by encapsulation of the ovum by inflammation. Complete absorption of the ovum and hæmatocele followed in fifty days. In the second retro-uterine hæmatocele followed rupture of the tube; recovery by absorption resulted, convalescence being established in eight weeks. In the third case peritonitis followed repeated hemorrhages, with death.

In diagnosis, attention is drawn to the shape of the uterus in ectopic gestation, it is flatter, less round, long and slender, while in intra-uterine gestation it is rounder. The decidua of pregnancy is known by the cells and the glands covered with epithelia growing at the mouth of the gland.

Four Cases of Ectopic Gestation.

Tuttle (*American Journal of Obstetrics*, January, 1890) reports a case of ruptured tubal pregnancy, with large intra-peritoneal hæmatocele; the sac was extirpated by laparotomy, the intestine being torn and sutured. Adhesions were loosened, the appendages left, and the abdomen flushed with hot water. Drainage was used. The patient was permanently cured. Electricity had been tried in this case but had failed. A second case of ruptured tubal pregnancy of the right tube was cured by laparotomy. In the third case the distended right tube was removed unruptured, containing the ovum. In the fourth case a very large intra-peritoneal hæmatocele was found; it was opened and clots removed, when alarming bleeding occurred, checked by clamps and iodoform gauze tampons; the clamps remained twelve hours, the gauze was gradually withdrawn in two days. Recovery ensued. The right tube and ovary were not seen.

Tubal Pregnancy Treated by Laparotomy.

Muratow (*Journal für Geburtskunde und Frauenkrankheiten*, Russisch, No. 6, 1889) performed laparotomy upon a patient pregnant eleven months who had fever, and on whom an attempt had been made to dilate and empty the uterus. In the Moscow clinic ectopic gestation was diagnosticated, with parametritis and suppuration in the sac. A macerated fœtus was delivered from a sac just under the surface of the abdomen; the placenta was left and drainage made. After tedious recovery multiple neuritis developed, from which the patient died. Post-mortem examination showed the fœtal sac communicating with the left tube, composed of a development of the tunica albuginea of the tube and a layer of inflammatory tissue.

The Intra-uterine Use of the Curette.

Borel (*Lyon Médicinische*, No. 45, 1889) employs the curette to empty the uterus after abortion with retention of portions of placenta, abortions followed by hemorrhagic endometritis, retention of the placenta after delivery at term. His method is as follows: Instruments used are passed through alcohol flame, strict antisepsis of hands and nails is practised; iodoform oil is employed as a lubricant, and bichloride 1 to 5000 for douches. An anæsthetic is not given; Cusco's speculum is introduced and opened widely; if necessary, the cervix is dilated by metal dilators; the curette is introduced dipped in a solution,

Creasote	5 parts.
Alcohol	8 "
Glycerin	25 "

and the endometrium thoroughly scraped. The uterus is then thoroughly washed out with bichloride 1 to 5000, and tamponed with a strip of iodoform gauze, which is carried to the fundus. Eight cases of puerperal septic infection are reported in detail in which this procedure was followed by good results.

The Microscopic and Bacteriological Study of the Lochia.

Artemieff (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xvii., Heft 2) concludes from extensive study of the lochia that the lochia of healthy women consist of blood corpuscles, pavement epithelium, mucous corpuscles, fatty degenerated cells, and cells which he designates locheiocytes. In the first few days after labor red blood-corpuscles predominate, which gradually diminish, while the locheiocytes become more numerous. With a mixture of pavement epithelia, mucous corpuscles, and fatty degenerated cells, the locheiocytes constitute the lochia alba. The reaction of the lochia is at first neutral, then feebly acid; during pregnancy the vaginal secretions are acid. The lochia of healthy women contain neither pus cells nor microörganisms. Locheiocytes may be recognized by their behavior when treated with gentian-violet or methyl-blue. They then appear as several (two, three, four, and more) large, deeply colored nuclei surrounded by clear and well-defined protoplasm, while pus cells stain homogeneously with the same dyes and show no nuclei. Locheiocytes are larger than pus cells in the proportion of one to two-thirds. Artemieff considers them true mucous cells.

The Bacteriological Study of the Lochia and of the Secretions of the Genital Tract during Pregnancy.

Thomen (*Archiv für Gynäkologie*, Band xxxvi., Heft 2) has examined the lochia of healthy women, and the genital tract of pregnant women, with the following conclusions: The vaginal lochia contain abundant bacteria of various sorts; in three cases streptococci were found. These microörganisms were more abundant in the vicinity of the entrance to the vagina than above.

Bacteria are more abundant during the puerperal period than immediately after labor; during menstruation bacteria are abundant in the vagina. The cervical lochia were sterile in some cases, contained few germs in others, and in a case of gonorrhœa contained many. In the greater number of cases the uterine cavity contained no germs; in pathological cases germs were present although fever did not always accompany them. It is possible that they had been killed by antiseptic injections employed in treatment. In control experiments upon animals germs from the vagina of normal cases produced no reaction when injected; streptococci in one case caused abscess and death.

An examination of the vertex of the child's head, after vertex labors, showed germs upon it derived from the vagina of the mother. Thomen found that in proportion as the vulva is in apposition bacteria are absent; the passage of anything which admits air favors the entrance and development of bacteria, menstrual blood serving as an especially good culture ground for germs.

A Contribution to the Study of Auto-infection.

Szabó (*Archiv für Gynäkologie*, Band xxxvi., Heft 1) contributes to the question of auto-infection in puerperal sepsis an extended review of the literature, and his own observation of 5070 cases in Kézmárszky's clinic in Budapest. His practical conclusions are strongly in favor of considering the healthy parturient, who has no vaginal examination or instrumental interference during labor, as aseptic and needing no douches. In proportion as students examine women in labor the frequency of fever and septic mortality increases, even when all possible antiseptic precautions are observed. The conclusion which he would draw for practical guidance is to limit douches to cases presenting some focus of infection before labor, or having had instrumental interference or injury at labor. Vaginal examinations and manipulations should be restricted as far as possible, limited to the least number of persons, and conducted with strict antisepsis. External antisepsis should be a routine, and rigidly observed. In abnormal cases, and in treatment of septic infection, prompt antiseptic treatment is very efficient.

Puerperal Tetanus.

Gautier (*Revue Médicale de la Suisse Romande*, No. 12, 1889) has collected 74 cases of tetanus, 36 following abortion and 38 following confinement. The most frequent complications followed by tetanus are those requiring the use of an intra-uterine tampon and the artificial removal of retained placenta.

Autopsies were made on 15 cases: 3 presented, on microscopic examination of the brain and cord, no appreciable lesion; in one case a retained putrefied

placenta was found in the uterus; in 5 suppurative inflammation of the uterus or appendages; in 1 ovarian cyst. The other autopsies showed hyperæmia of brain, cord, and meningitis; in 1 a hemorrhage into the lateral ventricles. 10 patients recovered, 5 after abortion, 5 after labor; mortality 86 per cent.

The most successful treatment is the use of antiseptics, stimulants, and sedatives. The genital organs should be disturbed as little as possible. Chloral is especially useful, and two drachms may be given in the first twenty-four hours, increased or diminished afterward as indicated by its effect. Gautier adds the report of a case of tetanus following a protracted abortion, in which hemorrhage followed lifting a heavy weight, but abortion was not complete until three and a half weeks afterward. Recovery ensued under the use of chloral, absolute repose, and careful feeding.

WERZÜNSKI (*Russian Journal of Obstetrics and Gynecology*, No. 6, 1889) reports the case of a primipara with contracted pelvis delivered by forceps. The perineum was slightly torn and promptly sutured. Some œdema of the labia was observed. Headache occurred on the fourth day, with trismus on the fifth. Tetanus and opisthotonus supervened. Nephritis, uræmia, and septic infection were excluded on careful examination. The symptoms abated, when, on the sixteenth day, an effort to rise was followed by renewal of spasms and death. A post-mortem examination was not obtained.

The Surgical Treatment of Puerperal Peritonitis.

BOUILLY (*Archives de Tocologie*, No. 12, 1889) suggested, at the recent French Congress of Surgery, the following method of treating puerperal peritonitis, which he had employed in six cases: An incision two and one-third inches long having been made in the linea alba, a glass douche tube connected with a fountain syringe is carried with the finger among the intestinal coils, and eight or ten quarts of hot water are allowed to run, a hot solution of bichloride of mercury 1 : 10,000 may be used. A large drainage-tube and heavy antiseptic dressing complete the peritoneal toilet.

The Effect of Maternal Hemorrhage upon the Fœtus.

CHARPENTIER and BUTTE (*Nouvelles Archives d'Obstétrique et de Gynécologie*, No. 12, 1889) conclude, from experiments upon pregnant rabbits, that when the mother suffers a hemorrhage sufficiently rapid and severe to cause her sudden death, the fœtus may survive if it be rapidly extracted. If the hemorrhage be less rapid, but sufficient to cause the death of the mother, and prolonged, the fœtus will perish just before the mother. If the hemorrhage is not sufficient to cause maternal death, but is considerable, the fœtus commonly dies in about an hour.

A Case of Fœtal Achondroplasia.

PORAK (*Nouvelles Archives d'Obstétrique et de Gynécologie*, No. 12, 1889) reports the case of a fœtus whose skeleton exhibited lesions constituting what he designates achondroplasia, which he defines as follows: a dystrophy of the primordial cartilage which accompanies the first osteogenetic formation at three to six months of fœtal life and which is complete in the last third of

pregnancy. The lesion is in the cartilage cells of the epiphyses of the long bones, whose longitudinal development is impaired, while the transverse growth is exaggerated; the lacunæ of the cartilage are well marked; it is elastic but does not fracture, and when ossified is remarkable for its firmness. Osteoporosis, fractures, and pseudo-paralyses, as found in rhachitis and syphilis, are not found in achondroplasia. The fœtus presents a normal trunk, slightly enlarged head, and limbs small in proportion, with hypertrophy of the skin, which lies in folds. The diaphyses of the long bones are exceedingly compact.

Congenital Umbilical Hernia Successfully Treated by Laparotomy.

Macdonald (*American Journal of Obstetrics*, January, 1890) reports a case of congenital umbilical hernia which resisted reduction by taxis. The infant was wrapped in flannel and chloroformed. The contents of the sac were found to be the ileum, ascending colon, and cæcum; the vermiform appendix, the size of a bean, was distinctly seen. The small intestine was returned to the abdomen, but it was necessary to resect the peritoneal layer, the wall of the sac about the cæcum and colon on account of firm adhesions. No hemorrhage followed. The ring was transfixed by an encircling suture, the wound dressed with bismuth and borated cotton, with flannel binder. Uninterrupted recovery followed. The operation was made six hours after birth.

Macdonald states the indications for operation as follows: the sac must be such that delay would lead to sloughing; the hernia must be irreducible; it must be incapable of retention by trusses. He has collected nineteen cases with seventeen recoveries.

GYNECOLOGY.

UNDER THE CHARGE OF

HENRY C. COE, M.D., M.R.C.S.,

OF NEW YORK.

The Importance of Early Extirpation of the Uterus for the Cure of Cancer of the Cervix.

Meyer (*Correspondenzblatt für Schweizer Aerzte*, 1889, No. 4), in describing the results of vaginal hysterectomy at the Zürich clinic, refers to two cases in which there was no recurrence at the end of two and four years respectively. He believes that the radical operation is justifiable only when the uterus can be drawn down so low that *the entire operation from beginning to end can be completed outside the vulva.* If the organ is less movable than this, the operator can never be sure that he has removed all the disease. He estimates that in the canton of Zürich forty women die from cancer of the uterus annually, and that an average of six patients, or fifteen per cent., submit to vaginal hysterectomy during the same period, a fact which emphasizes the importance of the early recognition of malignant disease.

When the symptoms have become so marked as to be unmistakable, it is too late to perform the radical operation with any hope of a permanent cure; hence general practitioners should learn to recognize the initial symptoms of cancer, and should insist upon an examination on the slightest suspicion. Moreover, the laity must be taught that if cancer of the cervix is recognized early there is hope of a permanent cure by hysterectomy with a minimum of danger, whereas, if they wait until the appearance of severe pains, hemorrhage, and offensive discharges there is little prospect of other than temporary relief. [The question naturally arises: Does not the limited class of cases in which alone the writer considers vaginal hysterectomy as justifiable include precisely those in which permanent relief is obtained by high amputation?—ED.]

THE RESULTS OF TOTAL EXTIRPATION OF THE UTERUS.

KALTENBACH (*Berliner klinische Wochenschrift*, 1889, Nos. 18 and 19) reports fifty-seven cases of vaginal hysterectomy, fifty-three for cancer, two for sarcoma, and two for prolapsus uteri. The writer seldom resorts to high amputation; as soon as the disease has extended above the portio-vaginalis he removes the entire uterus. Only two patients died immediately after the operation—one from uræmia, due to ligation of a ureter, and one from supposed sublimate poisoning in a case of diseased kidneys. In several instances the bladder, or ureter, was injured without bad consequences. Recovery was always rapid. Kaltenbach closes the peritoneum, having previously irrigated with a weak boro-salicylic solution. In seven cases of cancer of the corpus uteri there has been no recurrence; seven of the others are known to be well after the lapse of more than a year. Even if there is a return of the disease at the edges of the wound it can be kept in abeyance with escharotics or the actual cautery, and the patients are more comfortable than they would have been if the operation had not been performed.

VISCERAL DISEASE AS A COMPLICATION OF CANCER OF THE UTERUS.

LECA (*Thèse de Paris*, 1888) has made a special study of this subject and finds that aside from the renal lesions, which naturally follow direct pressure upon the ureters by extension of the disease from the uterus, patients with cancer are especially liable to cardiac affections, in which opinion he is supported by the opinions of Letulle and Lancereaux. Fatty degeneration of the spleen is a common accompaniment of carcinoma uteri, attributable, perhaps, to the fact that there are toxic elements in the blood which are especially injurious to that organ. [The Reporter has repeatedly been struck with the frequency of cardiac and renal lesions in patients with cancer of the uterus, even where the disease is strictly limited to the cervix uteri. The number of deaths from uræmia after vaginal hysterectomy is significant in this connection. So important are these visceral complications, that at the New York Cancer Hospital anxious watch is kept for them both before and after operation, since they sometimes make their appearance in patients who were thought to be in most promising condition. This is only one argument in favor of the rapidly growing belief that vaginal hysterectomy is not so free from immediate danger as many surgeons have claimed.—ED.]

A Digest of Twenty Years' Experience in the Treatment of Uterine Cancer by Galvano-cautery.

Byrne's paper (*Transactions American Gynecological Society*, vol. xiv., 1889) has attracted considerable attention by reason of the wide experience and well-known conservatism of the author. The results reported are most remarkable; 367 patients were operated upon, the disease being limited to the portio-vaginalis in 59, involving the entire cervix in 81, the body alone in 8, and both cervix and body in 219. In the first class the average period of exemption was upward of six years, 13 having been under observation for over ten years; in the second it was between four and five years, in the third two years, and in the fourth nearly three years. The writer's method of operating consists in scraping out the cervical canal thoroughly with a sharp curette, separating the vaginal attachment with the cautery knife, and removing the diseased mass as high up as possible with the galvanic loop. The remainder of the cervical canal is then cauterized, and finally the stump is thoroughly cleansed. In order to insure patency of the canal all patients who have not reached the menopause are examined once a month for at least a year. The after-treatment consists in tamponing the vagina with cotton saturated with glycero-tannin and five-per-cent. carbolic acid, the tampon being changed at the end of forty-eight hours. An anodyne is rarely required. The bowels are moved by enema on the third or fourth day, and the usual vaginal injections are given.

In conclusion, the writer states his belief that by the cautery not only is the cancerous tissue destroyed, but the heat extends beyond the parts which are visibly diseased, arresting the development of cancer cells or germs, or exerting some powerful modifying influence upon the pathological processes at a degree which does not seem to be destructive to normal tissues. [It is impossible not to be convinced by such statistics as these. The enthusiastic advocates of vaginal hysterectomy, even for cancer limited to the portio-vaginalis, may well stop and ask themselves what credit they gain by this brilliant operation the results of which are merely temporary.—Ed.]

On the Choice of Methods in the Treatment of Uterine Cancer.

Reeves Jackson gives an able *résumé* of this subject in the *Medical News* for January 18, 1890, in which he reviews the three methods of treating cancer of the cervix uteri—high amputation, galvano-cauterization, and vaginal hysterectomy. After reviewing the statistics of high amputation, as set forth by Baker, Reamy, Verneuil, and Hofmeier, he reports thirty cases from his own practice in which he performed this operation, with a mortality of 6.6 per cent. Nine patients are now living at the end of from two and one-half to six years after the operation. Reference is made to the unusually favorable results obtained by Pawlik and Byrne with the galvano-cautery, and, finally, by quotations from Martin, who stated at the International Medical Congress that out of 214 women who had submitted to vaginal extirpation of the uterus only five were living at the expiration of five years, the temporary nature of the relief afforded by hysterectomy is clearly proved. "A hundred women with uterine cancer," he concludes, "will live a greater number of years if left alone than if subjected to hysterectomy."

Intestinal Obstruction following the Removal of a Cyst of the Mesentery.

Löhlein (*Berliner klinische Wochenschrift*, 1889, No. 5) reports the case of a patient, aged fifty-seven, who was suddenly attacked with diarrhœa and pains in the stomach, attended with a slight rise of temperature. Examination of the abdomen revealed a cystic tumor the size of a man's head, which, on his performing laparotomy, was found to be a true mesenteric cyst with firm intestinal adhesions. It was drained and stitched in the wound. The patient made a good recovery, but four weeks after the operation was suddenly attacked with vomiting, which soon became fecal in character, and attended with moderate tympanites. Intestinal obstruction in the region of the sac was diagnosticated and laparotomy was performed promptly. A coil of intestine was found adherent to the sac in such a way as to limit peristalsis and cause obstruction. The gut was detached and dropped back and the patient made a rapid recovery. The writer opposes the practice of exploratory puncture, on account of the danger of wounding the intestines which might be adherent to the upper surface of the cyst, as in this case.

The Importance of the Practice of Washing out the Peritoneal Cavity as a Means of Securing a Natural Disposition of the Intestines after Abdominal Section.

Malcolm, in a short but suggestive paper (*Lancet*, January 11, 1890), again calls attention to the great danger which may result to the patient after laparotomy, from simple paralysis of the bowel, though peritonitis may be entirely absent. Raw peritoneal surfaces are very apt to unite, even if they are entirely healthy. It is impossible after a laparotomy to arrange the coils of intestine in such a position that they will not sometimes become adherent. In sponging they are very apt to be disturbed and thrown into unnatural relations. By irrigating the cavity we cause the intestines to float upwards and thus undo any twists that may have formed. Now, if the fluid is sucked out of the cavity, instead of being withdrawn by sponges, they will settle down in their natural position just the same as when ascitic fluid is evacuated. Persistent vomiting after laparotomy seems to be beneficial rather than otherwise, since by the pressure of the diaphragm and abdominal muscles the bowels are rearranged, as it were, and made to assume their normal relations. The important point to be borne in mind is that it is not so much the fact that the intestines contract adhesions to adjacent parts which give rise to subsequent persistent pain or obstruction, as it is that they become adherent in unnatural positions.

Sixty Cases of Laparo-myomotomy.

Fritsch (*Sammlung klin. Vorträge*, No. 339) in his first twenty-seven cases treated the stump according to the intra-peritoneal method, but his results were so bad that he subsequently adhered to the extra-peritoneal. Of thirty-two cases treated in the latter way five died, one from uræmia (double pyelo-nephritis), one from endocarditis, one from hemorrhage, and two from ileus—*i. e.*, there were no septic cases. He does not accept the theory that

septic infection comes through the cervical canal, and attributes the fatal peritonitis in these cases rather to the accumulation within the cavity of more serum than the peritoneum is able to absorb, especially if the patient is in bad general condition or has some pre-existing visceral lesion. He does not use the elastic ligature. A wedge is excised from the stump, not transversely, as usual, but in such a direction that the surface of the stump and the abdominal wound are parallel; its opposite surfaces are united by deep and superficial sutures, and the stumps of the broad ligaments, together with all the ligatures, are brought out through the wound to favor drainage. This operation can be performed safely and quickly, and the peritoneal cavity is absolutely shut off. Of twenty-two patients thus treated only two died, one from uræmia and one from ileus.

The Results of Nephrorrhaphy.

Frank (*Berliner klinische Wochenschrift*, 1889, Nos. 9–11) adds to thirty-six cases collected from the literature twenty operated upon by Hahn. The latter now opens the fatty envelope of the kidney, splits the true capsule, and lifts the latter from the subjacent parenchyma, an area on which is freshened, and thus unites to the opposed surface, giving a firm cicatrix. The patient is kept in bed for five or six weeks. Of the fifty-six patients operated upon only two died, and these not in consequence of the operation. In twenty-one cases all the bad symptoms disappeared, in nine there was marked, and in seven considerable relief. The writer believes that nephrorrhaphy should first be tried in all cases of floating kidney before the organ is extirpated.

The Cure of Vaginismus by the Galvanic Current.

Lomer (*Centralblatt für Gynäkologie*, December 14, 1889) reports the following cases of vaginismus which were cured by the continuous current:

Case I.—The patient was twenty-two years of age, had been married five years, and suffered so much during coïtus that the act had never been perfectly accomplished. After other treatment had been employed in vain a mild continuous current was used, the kathode being placed on the stomach, while the anode was applied to the peritoneum and introïtus, the *séances* being repeated every third day and lasting four or five minutes. At the end of six weeks the muscular spasm was entirely relieved and coïtus was satisfactory. The cure was permanent.

Case II.—The patient, aged twenty-seven, had been married two months without having had coïtus, repeated attempts having caused so much pain and irritation that they were abandoned. The constant current was used as in the former case, effecting a perfect cure within five weeks.

Two Hundred and Thirty-eight Cases of Completed Ovariotomy.

Bantock (*Transactions British Gynecological Society*, November, 1889) gives an interesting summary of his results in four hundred cases. In the first hundred, most of which were done according to the Listerian method, he lost nineteen, in the second fourteen, in the third (in which no antiseptics were

used) eight, and in the fourth four. He uses plain water—not even boiled—for all purposes from washing the hands to irrigating the peritoneal cavity and discards all germicides in his dressings.

He washes out the peritoneal cavity quite frequently, having done so in more than one-half of the last hundred cases. When there has been profuse hemorrhage the addition of salt to the water in the proportion of seven parts to a thousand may favor a sort of process of transfusion, as suggested by Delbet.

In treating the pedicle, Dr. Bantock compresses it with forceps to obviate slipping of the peritoneal folds, before using the permanent ligature, which is the figure-of-eight loop.

Until 1885 he administered opium as a routine practice after operations, but in his last hundred cases it had been given only three times. Even in cases of supra-vaginal hysterectomy the patient is encouraged to do without it, and always with the best results.

Vomiting after laparotomy is best arrested by keeping the stomach empty for several hours before operation, and allowing nothing to be taken subsequently, except a little hot water if there is ineffectual retching, or if the stomach contains bile. If the latter becomes decomposed, fifteen or twenty grains of bicarbonate of soda in three or four ounces of hot water will check the resulting nausea. The writer's patients are rarely much troubled with nausea, however, as he has always employed chloroform as an anæsthetic. Allowing the patient to suck ice for the relief of thirst after operation is a pernicious practice. Rinsing the mouth with warm water gives more relief and is preferable in every way.

Of late years he has rarely seen a case of peritonitis after laparotomy, in which respect he regards himself as very fortunate, since he has "little or no faith in any kind of treatment." He does not understand the *rationale* of the saline treatment, since peritonitis is largely due to the presence of offending material within the peritoneal cavity which can only be removed by reopening the wound. Neither late vomiting nor tympanites is necessarily a symptom of peritonitis; distention is rather a sign of obstruction, either mechanical or from simple paralysis of the gut. In these cases he stops everything by the mouth, with the most satisfactory results. He accepts the statements of Tait and Greig Smith with regard to the action of saline purgatives, but not their interpretation of the facts observed. "I believe," he says, "that we are as far as ever from the attainment of a successful method of treating actual peritonitis."

Note to Contributors.—All communications intended for insertion in the Original Department of this Journal are only received with the distinct understanding that they are contributed *exclusively* to this Journal for publication. Gentlemen favoring us with their communications are considered to be bound in honor to a strict observance of this understanding.

Liberal compensation is made for articles used. A limited number of extra copies in pamphlet form, if desired, will be furnished to authors in lieu of compensation, *provided the request for them be written on the manuscript.*

All communications should be addressed to

Dr. I. Minis Hays, No. 266 South Twenty-first Street, Philadelphia.

CONTENTS.

ORIGINAL COMMUNICATIONS.

	PAGE
Chorea in the Adult as seen Among the Insane. By THEODORE DILLER, M.D.	329
The Place of the Sea Voyage in Therapeutics. By JAMES ALEXANDER LINDSAY, M.A., M.D.	350
Tenotomy for Talipes. By JAMES K. YOUNG, M.D.	363
Compound Comminuted Fracture of the Patella Treated by Wiring. By MIDDLETON MICHEL, M.D.	368
Recurrent Herpes Zoster. By M. B. HARTZELL, M.D.	373

REVIEWS.

The National Medical Dictionary: Including English, French, German, Italian, and Latin Technical Terms used in Medicine and the Collateral Sciences, and a Series of Tables of Useful Data. By John S. Billings, A.M., M.D.	377
The Blood and its Anatomical Alterations. By George Hayem	380
The Uses of Electrolysis in Surgery. By W. E. Stevenson, M.D.	386
Clinical Lectures on Varicose Veins of the Lower Extremities. By William H. Bennett, F.R.C.S.	387
Papers on Dermatology. By E. D. Mapother, M.D.	388

PROGRESS OF MEDICAL SCIENCE.

THERAPEUTICS.

	PAGE
The Clinical Value of Somnal and Chloralamide	389
Menthol in Acute Rhinitis, Influenza, and other Affections of the Nose and Throat	390
Orthin	391
Exalgine	393
Poisoning by Exalgine and Acetanilid	393
More about the Action of Chloroform	394
The Constituents of Cod-liver Oil	394
Local Anæsthesia by Cocaine	395
The Value of Sodium Silicofluoride as an Antiseptic	395
Aristol	396
Preparation of Ergotin for Hypodermic Injection	396
Antipyrin and Thallin as Hæmostatics	396
Official Trial of Amadon in the Treatment of Carcinoma	397
Ural, a New Hypnotic	397

MEDICINE.

	PAGE
Influenza	397
Anatomical and Bacteriological Observations on Influenza	398
Disinfection of the Dejections of Typhoid Fever and Cholera	399
Masked Intermittent Fever in Children	399
On Pfeiffer's Test for Latent Gout	400
Winckel's Disease	401
Leukæmia	402
Leukæmia Acutissima and Centripetal Venous Pulse	403
Inflammatory Leucocytosis	403
Congestive Venous Diathesis and General Venous Congestion	404
Disturbances of Sensibility and Ataxia	404
The Treatment of Phthisis with the Emulsion of Peru Balsam	406
The Treatment of Cholelithiasis	407
Diagnosis and Treatment of Aneurism of the Aorta	408
Gastric Digestion in Heart Diseases	410

SURGERY.

	PAGE		PAGE
Surgery of Infancy and Childhood	411	The Removal of an Enormous Encysted Vesical Calculus	417
The Antiseptic Value of Iodoform	413	Osteitis Deformans	419
Primary Sarcoma of the Tonsils	414	Mitral Stenosis	419
Extirpation of the Isthmus of the Thyroid in Goitre	414	Blood Tumors of Bone	419
Symptoms and Conditions which justify Nephro-lithotomy	415	The Grafting of Bone after Extensive Loss of Osseous Tissue	420
Lumbar versus Iliac Colotomy	416	The Ligation of Varicose Veins of Leg	421

OTOLOGY.

The Nature of Influenza with Special Reference to the Aural Symptoms	422	Excision of the Membrana Tympani and Two Larger Auditory Ossicles for the Cure of Chronic Otorrhœa	423
The Connection between Epidemic Influenza and the Catarrhal Affections of the Eustachian Tube and the Tympanic Cavity	423	Mobilization of the Stirrup	424
		Diseases of the Ear in Diabetes	425

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

Professor Billroth's Operations on the Larynx	427	Large Hard Papilloma of the Nasal Passage	428

OBSTETRICS.

Antiseptics in the Hands of Nurses and Midwives	429	Cæsarean Section for Bony Tumor of the Pelvis	432
The Value of Acetic Acid as an Antiseptic in Obstetrics	430	Tubal Pregnancy treated by Injection of Chloride of Zinc	433
Changes occurring in the Tubes and Ovaries during Pregnancy and the Puerperal State	430	Two Cases of Ruptured Tubal Pregnancy	433
The Prognosis of Pregnancy occurring after Cæsarean Section	430	Ectopic Gestation. The Treatment of Tubal Pregnancy by Injections of Zinc Chloride	433
A Case of Air Embolism following Intra-uterine Tamponing with Iodoform Gauze in Placenta Prævia	430	Subsequent History of Extra-uterine Pregnancy Treated by Electricity	433
Placenta Prævia Lateralis with Unusual Toughness of the Membranes	431	The Treatment of Mastitis with the Plaster-of-Paris Bandage	434
The Best Method of Delivering the After-coming Head	431	Treatment of Post-partum Hemorrhage	434
The Forceps applied to the Breech	431	Fœtal Death and Maternal Infection caused by Infection of the Amnion	434
Treatment of Rupture of the Uterus	431	The Influence of Menstruation upon Lactation	435
Rupture of the Uterus Complicated by Carbolic Acid Intoxication	432	Respiration in Prematurely-born Children	435
		Sterilized Milk	435

GYNECOLOGY.

Origin of Ovarian Cysts	436	Partial Extirpation of the Ovaries and Tubes	438
Sterility in Woman	436	Creolin in Gynecology	438
Removal of Diseased Ovaries and Tubes	437	Treatment of Pyosalpinx by Drainage into the Uterus	438
Myomotomy and Splenotomy in the Same Patient	437		